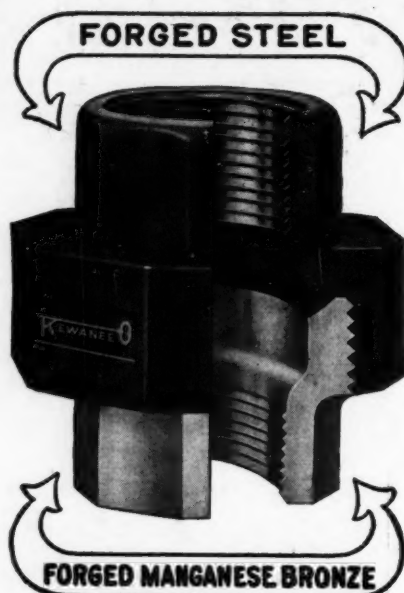


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Devoted to the Operating, Technical and Business Problems of the Coal-Mining Industry

Volume 31

New York, January 6, 1927

Number 1

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McGRAW-HILL PUBLISHING COMPANY, INC.

Tenth Avenue at 36th Street, NEW YORK, N. Y.

WASHINGTON, Colorado Building
CHICAGO, 7 South Dearborn Street
PHILADELPHIA, 1600 Arch St.
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ST. LOUIS, Star Building
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The annual subscription rate is \$3 in the United States, Canada, Mexico, Alaska, Hawaii, the Philippines, Porto Rico, Canal Zone, Cuba, Honduras, Nicaragua, Dominican Republic, Salvador, Peru, Colombia, Bolivia, Ecuador, Argentina, Chile, Spain, Panama, Brazil, Uruguay, Costa Rica, Guatemala, Haiti and Paraguay. Extra foreign postage \$3 (total \$6 or 25 shillings). Single copies, 20 cents.
Change of Address—When change of address is ordered the new and the old address must be given. Notice must be received at least ten days before the change takes place.

Copyright, 1927

By McGraw-Hill Publishing Company, Inc.
Published weekly

Entered as second-class matter Oct. 14, 1914, at the Post Office at New York, N. Y., under the Act of March 3, 1879.

Printed in U. S. A.
Member Audit Bureau of Circulations
Member Associated Business Papers, Inc.

Number of copies printed this issue, 10,215

Publishers of
Coal Age
Engineering News-Record
Power
Ingeniería Internacional
Bus Transportation
Electrical World
Industrial Engineer
Engineering and Mining Journal
American Machinist
Chemical and Metallurgical Engineering
Radio Retalling
Electric Railway Journal
Electrical Merchandising
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Electrical West
(Published in San Francisco)
American Machinist—European Edition
(Published in London)

Problems of the Industry

IN THIS issue of *Coal Age*, the first in Volume 31, it is perhaps fitting to reiterate some of its purposes. Although it is not possible, of course, to cover all phases of the coal industry in each number, it is the aim of the editors to cover its operating, technical and business problems in such a manner as to promote greater efficiency, lighten labor, increase safety and make better coal available to the consumer. As stated in the Foreword of the first issue of the paper, it is our desire to be instrumental, with the co-operation of the industry, "in putting it on a higher, safer footing."

Coal Age was founded in 1911 by the Hill Publishing Co., under the editorship of Floyd W. Parsons. In 1915 the *Colliery Engineer* was absorbed, the title of *Coal Age* being retained. Since that time the journal has been successively under the editorship of R. Dawson Hall and C. E. Leshner.

The editorial staff of *Coal Age* consists of:

New York: R. Dawson Hall, Frank H. Kneeland, Sydney A. Hale, Jerome C. White, Louis C. McCarthy, Frank J. G. Duck and Edgar J. Gealy. Huntington, W. Va.: J. H. Edwards. Pittsburgh, Pa.: A. F. Brosky. San Francisco: George J. Young.



Developments of 1926

EVERY manufacturer bears an obligation to the industry he serves. Obligated, not alone by the ties of pleasant relations and friendship, but by the strong tie of stern necessity, as well.

A manufacturer is obliged to continue the manufacture of materials which have found ready market in the past—which have helped his customers accomplish profitable business results.

In addition, he must further discharge his debt by ever keeping pace with trends and progress, anticipating needs as they develop and providing proper materials to meet them.

It is this spirit that animates O-B. It is but the fulfillment of this spirit that has brought the "O-B Developments of 1926" shown on this page.

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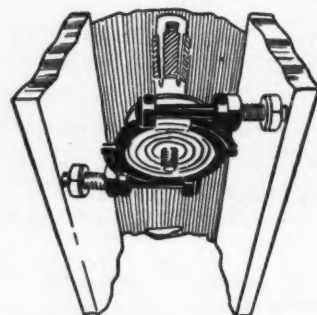
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COAL AGE

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Devoted to the Operating, Technical and Business
Problems of the Coal-Mining Industry

R. Dawson Hall
Engineering Editor

Volume 31

NEW YORK, JANUARY 6, 1927

Number 1

Safety in Life Saving

ECONOMY WHICH RESULTS in loss of life is generally condemned, but a disposition nevertheless to economize often leads men to run chances. Even the Bureau of Mines, established though it is to promote safety, has two old rescue cars of obsolete wood construction, too frail to be put on fast trains or to be placed anywhere but at the rear of slower ones. Yet these cars still continue in service.

Can speed ever be more greatly needed than when a score or perhaps a hundred lives are in jeopardy in a mine that has had an explosion? Surely these cars should be such as to be safe when whisked along the road by the fastest of trains or when subjected to the roughest of treatment. Congress should see that the Bureau of Mines, for which it is responsible, has the equipment for safe and effective service. It should set the standards for safety. Economy without safety is not a virtue but its opposite.

Personal Inventory

WITH MOST of us mortals work is a necessity rather than a hobby or pastime. We work to sustain ourselves and our families, and also to accumulate property which promises us leisure during old age as well as for the pleasures which require time and money. We invest time and money in schooling and often sacrifice larger pay for experience that will increase our future earning power. We provide good equipment for "I & Company," and manage the "operating department" industriously. But what of the "accounting department"? How many of us make a personal inventory once a year?

Long ago, corporations found it necessary to periodically make an inventory and compile a complete financial statement. It is only by such means that the true losses or accomplishments for a certain period are revealed. To an individual who aims to do more than merely earn a living as he goes along, a personal inventory and financial statement is of like value.

Because of the compilations necessary in declaring earnings and property for income and other taxes, Jan. 1 is a convenient date for a personal statement. The first of these will do little more than reveal the net worth of the individual but the second statement will show what progress has been made in the past year.

This practice of making a personal statement at the end of each year soon brings the individual to a realization that "something saved out of salary each year and invested wisely" is a sure road to independence. And strange to say in most cases independence thus won does not bring a contempt, but rather an added zest for work. Lack of cause for financial worry naturally leaves room for clearer thinking, better planning and finer execution.

To the young man especially is this practice of making a yearly financial statement recommended. It will not only help him in his ambition to attain a certain degree of independence, but also will give him a better insight into the fundamentals that are so necessary in successful business management.

Management as a Science

COAL-MINING is a business. The mine foremen and other operating officials are business managers in the sense that they are in charge of the men and money of their employers. The fundamentals of efficient and effective operation, business administration, the knowledge and practice of economic laws are as applicable to the operating man in coal mining as they are to those of other industries. These others have, besides their technical societies, those which are devoted to management methods; they include the Management Division of the American Society of Mechanical Engineers, the Taylor Society, the Society of Industrial Engineers, and the American Management Association. It is to these societies that scientific management owes much of its growth; the introduction of analytical methods into management, has made it so nearly a science that it has attracted the "engineering" mind.

This phase of coal mining has been recognized in the formation of the Southern Appalachian Efficiency Association, an organization which has the right start because it is a "child" of the Southern Appalachian Coal Operators Association, an organization of employers. This is a move in the right direction; and by proper guidance and encouragement, with a clearer understanding that study of management will benefit the coal industry, this association has great possibilities for good. It should receive the encouragement and support of the operators.

Evaluating Time

NOT A FEW operating officials have failed to ascertain the exact cost of a minute of operation. Managers and superintendents should take their payroll, total up the expense for all their day men and divide by 480. Equipped with that information, they could tell the cost of a minute's delay in operation or of any other length of time and this datum they should use when presenting their requisitions for equipment that will prevent such expensive losses of time. If they can show also the time wasted during the day due to any given cause and can calculate the loss in dollars resulting therefrom, they will have a convincing argument for the purchase and installation of equipment that will save such delays.

In a degree, the cost per ton tells the same story, but it is not such a direct and convincing presentation because it is not so clearly related to the delay as the cost of wasted minutes.

Ineffective machinery and equipment is the cause of many losses. Cars break down or are derailed on the road. One delay may cause more loss in time than would pay for a new car, certainly for a new rigging on an old car. Yet such stoppages occur with distressing regularity. Derailments, due to improper frogs and switches, light rail, lack of grading, insufficient tie support and other faults, are frequent, yet their cost is usually figured solely on the expense entailed for material and replacement labor, not in the time lost, which, as a rule, is far more valuable.

The man who would succeed in his enterprise must be jealous of these wasted minutes. They are a real loss at any plant. He should not be content till every part of the process of transportation and dumping continues without delay. Too many are troubled to see a single man idling and yet have never given due attention to the hundreds of dollars that are lost by remediable delays due to defective equipment—to their own omissions and commissions in fine rather than to the faults of their employees.

The manager who cannot show clearly the gains to be made by better equipment is always likely to be saddled with such inadequate facilities for economic production that he will never attain a low cost per ton. He will do well to employ somebody to ascertain the facts if he has not time to find and calculate them himself. The manager or superintendent who makes the need for equipment clear to the president of the company will not fail to attain the necessary budgetary assistance, provided, of course, the president is wideawake and can present his case with proper cogency to the financial authority by which he is backed. The manager or superintendent who has only hazy notions of the losses and gains to be attained by certain changes in equipment is not worth his salt.

Padding the Expenses

HOW MUCH MONEY and time an operating company loses a year by permitting its employees to manufacture home-made equipment of a type which is already on the market at a reasonable price it is almost impossible to estimate.

One of the greatest causes for such losses is the unwillingness of some engineers, superintendents or other executives to purchase new equipment even though the need for it is glaringly obvious. Usually the direct purchase of a piece of apparatus or a repair part is all too visible an expenditure, whereas much more money spent in material, time and labor in the making of a home-made product is unseen. This virtually amounts to padding the expense account.

Consideration in such instances is rarely given to the imperfection of home-made products. Factory-made apparatus is almost always constructed with jigs, tools and materials specially designed and selected to turn out the best products possible.

The home-made device frequently involves the use of materials purchased and shaped for other purposes while the expense and inconvenience occasioned when their redesign is necessary is never considered and properly capitalized as a cost against the mine-made product.

Then again, the selection of types and sizes of component parts of a home-made device are rarely correct. A manufacturing plant, on the other hand, uses the

proper sizes of parts so that exact replacements in making repairs is readily possible. Fitting a repair part thus is entirely unnecessary.

Factory manufacturing conditions cannot be duplicated in the field, hence it is practically impossible for a mining company, even if it had the exactly shaped raw materials available, to turn out as fine or reasonably priced a product as can be made in a factory. Perhaps the folly of attempting to replace manufactured apparatus with home-made types is most forcibly presented by a knowledge of the fact that the use of too large a wire, casting, gear, motor or controller often represents the difference between a loss or a profit to the manufacturer when all things are considered. Mass production begets economy.

With the many pitfalls of improper design, use of wrong materials, high labor and heavy material-handling charges always present where home-made devices are fabricated to supplant factory products it is reasonably certain that in most cases factory-made equipment is the cheaper.

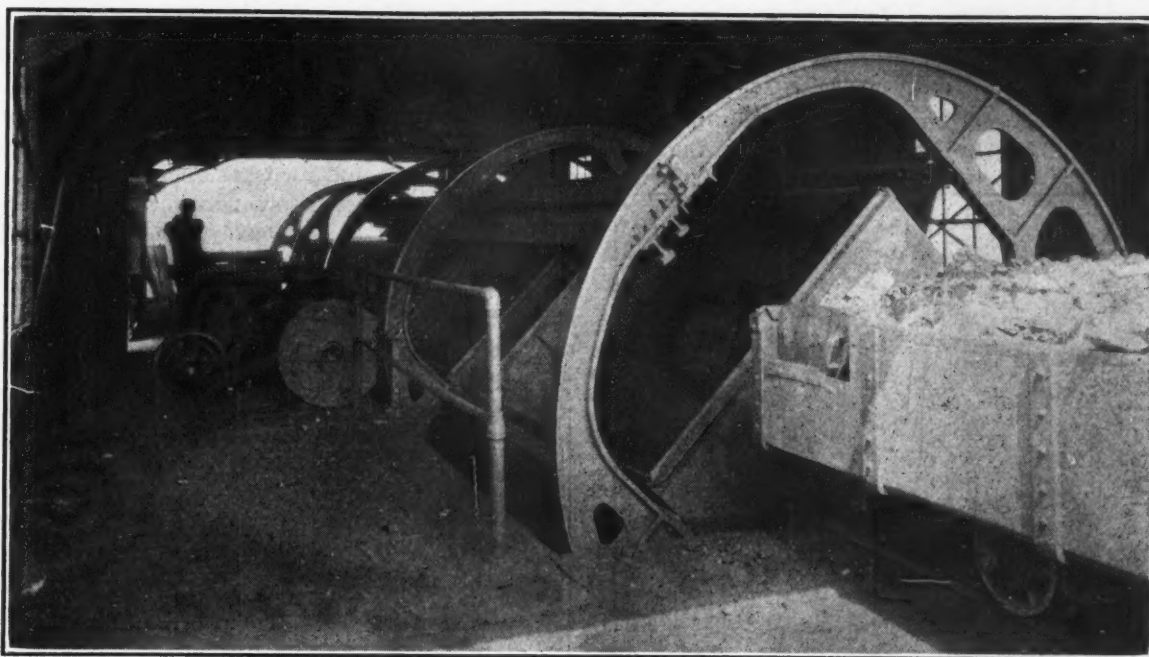
Learning from the Past

ENVIRONMENT AND HEREDITY are terms firmly imbedded in modern sociology. Students of social sciences are tireless in their efforts to explain the individual—normal, abnormal and subnormal—in terms of his forbears and his surroundings. Whether blood or position is the more potent in forming character and directing individual action is a question on which endless debate has been waged.

The part tradition and past circumstances play in creating mass prejudices and in determining mass action offers a field for speculative inquiry which, in some directions at least, has not received the attention its importance warrants. In the coal industry, for example, such a study would do much to illumine the intricate problem of labor relations with its complex mixture of human passions and economic considerations. Even a most casual survey of the historical side of the question makes it clear that satisfactory relationships are impeded on every hand by prejudices which have long since lost all foundation in fact.

In labor conflicts we are dealing with effects without always understanding the remoter causes. Organized labor, where it is strongly entrenched, too often seems committed to a policy of compelling the present generation of employers to pay tribute for the transgressions of their predecessors. Abuses which labor leaders now in power and their followers never suffered color their mental attitude, and the censure that fattens prejudice is largely indiscriminate. Some employers, too, are secretly embittered by the loss of the prerogatives their fathers and grandfathers enjoyed years or even generations before they were born.

If modern labor relationships are to be freed from the incubus of the past, it appears obvious that the first step in liberation is a thorough knowledge of the causes which gave birth to inhibiting prejudices. With that end in view *Coal Age* in this issue begins a series of articles by Myron D. Edmonds tracing the rise of unionism in the anthracite region. The events there retold have had an important part in shaping labor psychology. The more generally this historical background is understood by the public the less effective prejudice will become.



Ingenious Devices Speed Work at Derby Mine

Cars of Slate and Coal Are Dumped in One Operation Without Uncoupling—Head-and-Tail Rope System Feeds Cars to Dumps—Sidetracks Increase Mine-Car Service—Pillars Mined "Open-Ended"

By Alphonse F. Brosky

Assistant Editor, *Coal Age*, Pittsburgh, Pa.

THE STONEGA COKE & Coal Co. owns the mineral rights under a large area in southwestern Virginia. The most important beds in this tract are the Taggart and Imboden measures which underlie a large portion of the entire area. Collectively, the coal from these seams is suitable for gas, steam, byproduct and domestic purposes. It is being produced at eight mines in Wise County and one in the adjoining county of Lee. All these plants are easily accessible from the town of Big Stone Gap where the company's operating office is located.

This article is devoted to the Derby mine, which is the largest of these plants. A novel system of dumping is employed, whereby cars of coal and slate in a mixed trip are emptied separately without being uncoupled, by revolving dumps in one dump house. The problem of feeding cars through the dumps is solved by the use of hoists and ropes. In this

mine gathering is made easy by a well-planned sidetrack layout, and pillars are recovered by "open-end" mining, as may be seen in one of the illustrations.

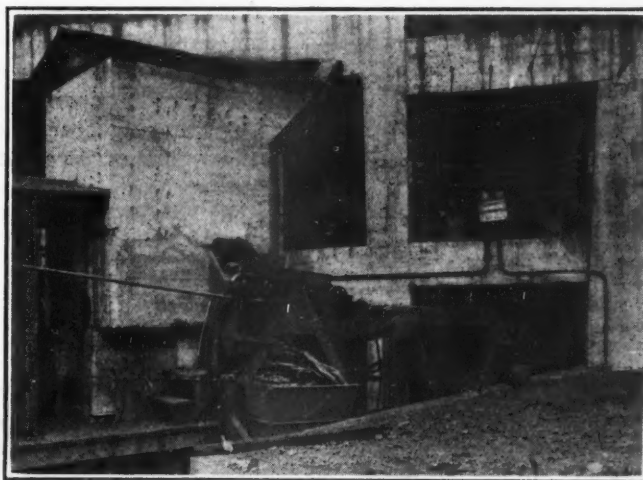


Fig. 1—Aerial Slate Disposal Bucket

Disposal of slate is unusually direct. No uncoupling of cars in a mixed trip is necessary. The distance of travel and amount of handling of the slate, from the revolving dump to the chute pocket, thence into the aerial bucket and finally to the slate bank, is a minimum.

The Derby mine is located in Wise County, about three miles north of the town of Appalachia. The workings extend under Black Mountain and adjoin those of the Lynch property, of the United States Coal & Coke Co., in Kentucky. The seam being worked is the Taggart and the mine is now producing about 3,000 tons a day. While the surface plant and town at present serve in the mining of this one bed only, they are so located that they might logically serve in the operation of three other seams on the property.

About 40 ft. below the Taggart is the Marker seam, which is free from bands of impurity throughout its thickness of 42 in. The facilities at this plant will undoubtedly be used in the mining of this coal; in fact the plant was designed with this intention in view, and the lower bed is already tapped by several openings now idle. The company contemplates using conveyors in the mining of the Marker seam.

In the headpiece accompanying this article may be seen the two full-revolving dumps that discharge coal and slate respectively from a mixed trip as it comes from the mine. The coal dump, seen in the foreground is of two-car capacity whereas the one in the rear handles only a single car at a time. These machines may be operated either simultaneously or independently.

About 600 ft. above the Taggart is the Parsons bed, and about 60 ft. above that is the Morrow seam. Each of these latter measures is about $4\frac{1}{2}$ ft. thick and of market quality. The coal from these beds can be made available for handling by this plant through the con-



Fig. 2—Disposal of Slate by Aerial Cableway

Here, as in many other instances, the most desirable place for the slate dump was at some distance from the preparation plant. In this particular case the most advantageous location for the slate bank was across a valley from the tippie. Under these conditions the aerial tramway admirably meets the necessity.

struction of an aerial tramway or some other conveyance.

Coal and whatever slate is not gobbled underground are hauled to a dump house at the tippie, over an outside tramroad which is about 2,800 ft. long and on a grade of $2\frac{1}{2}$ per cent in favor of the loads. Here the cars are emptied by two rotary dumps—a two-car unit for coal and a single-car unit for slate. The mine cars are of composite construction, box-shaped, and hold 3 tons each. The handle of the brake lever is boxed in so that

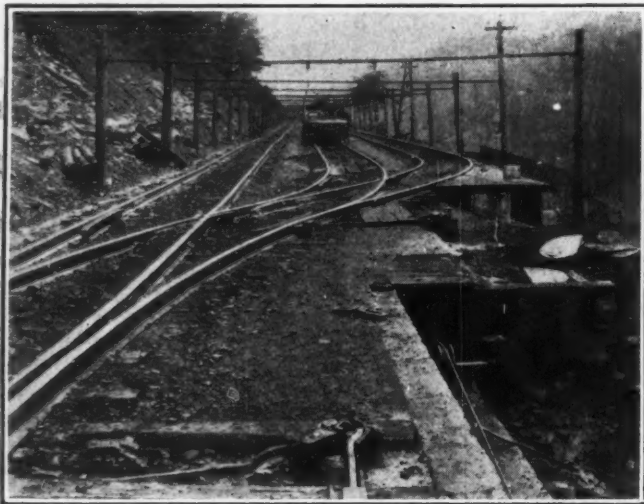


Fig. 3—Head Rope of Trip Feeder

Loaded trips of cars are fed through the dump house by the rope here shown. The empty storage track on the right is not used at the present time because the Marker bed openings it was built to serve are now idle. The track on the left is part of the main line which passes the dump house and leads to the main storage tracks.

the hand is protected from injury while applying the brake. As these cars are equipped with swivel hitchings, dumping is effected without uncoupling. These features are illustrated in the headpiece.

The two dumps are of the full-revolving type, and each is driven independently of the other by a motor through a pinion and gear. The two machines can be operated simultaneously if that is desired. Between the two is an interval equivalent to the length of one mine car. From a receiving pocket under the two-car dump the coal is transported to a reciprocating screen in the tippie by a short apron conveyor set on a slight slope. The slate drops directly into a chute storage pocket under the single-car dump and is disposed of by an aerial tram. This carries the refuse across the valley in which the tippie is located and elevates it sufficiently



Fig. 4—Load Storage Tracks

Railroad standards of construction have here been rigidly followed. The rails here used are of 85-lb. weight and the accessories are of like proportions. The runaround track on the left is a continuation of the main line. The coupling (with chain attached) in the foreground joins the head and tail ropes by means of which trips are fed through the dump house. At this point the trips are attached to the rope by means of the chain. The hoist that operates the tail rope is located under cover at the junction of the two storage tracks.

to provide a fill that will accommodate whatever slate is taken out of the mine during the next ten years or thereabout. The towers and anchors of the aerial tram can then be moved to higher ground, thus affording more dumping space.

At the tippie are two tracks for the storage of loads and two for empties; all are level and each accommodates 40 cars. Inasmuch as the load storage tracks begin at

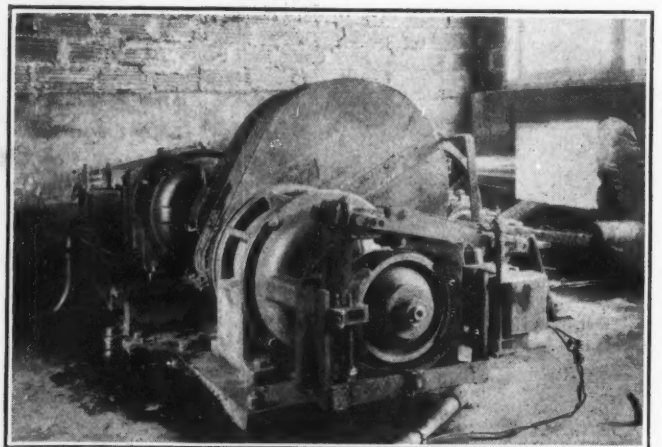


Fig. 5—Head Hoist of Trip Feeder

As originally installed this machine was driven by only one motor. The second motor was added because the trips moved too sluggishly through the dump house during cold weather. The change was simple consisting only of lengthening the countershaft for the accommodation of an additional gear which is driven by a pinion on the second motor. This hoist is remotely controlled from the dump house through a magnetic switch panel.

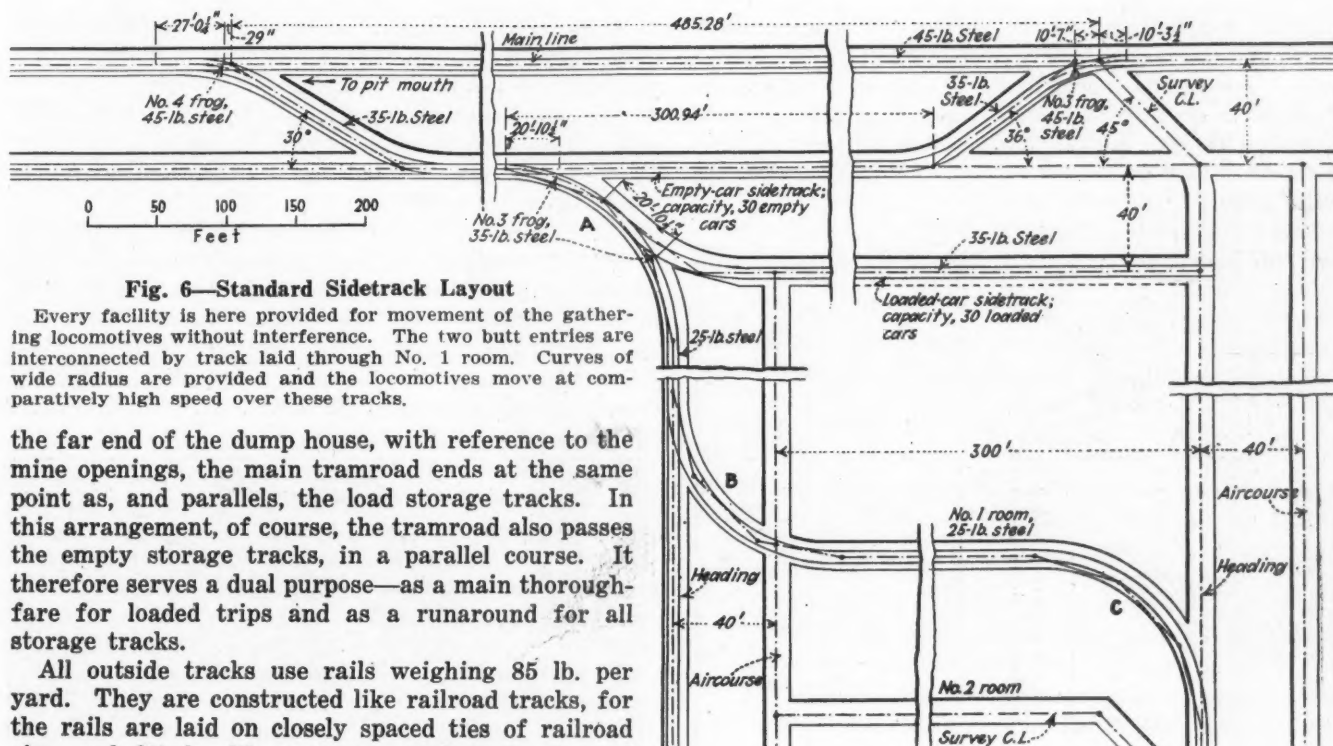


Fig. 6—Standard Sidetrack Layout

Every facility is here provided for movement of the gathering locomotives without interference. The two butt entries are interconnected by track laid through No. 1 room. Curves of wide radius are provided and the locomotives move at comparatively high speed over these tracks.

the far end of the dump house, with reference to the mine openings, the main tramroad ends at the same point as, and parallels, the load storage tracks. In this arrangement, of course, the tramroad also passes the empty storage tracks, in a parallel course. It therefore serves a dual purpose—as a main thoroughfare for loaded trips and as a runaround for all storage tracks.

All outside tracks use rails weighing 85 lb. per yard. They are constructed like railroad tracks, for the rails are laid on closely spaced ties of railroad size, and fitted with accessory equipment of equal proportions. Where guard rails are provided, so also are guard-rail clamps; all curves, conditions permitting, are made as wide as railroad practice dictates. Main-line tracks underground are constructed with the same thoroughness as are those on the surface. Much of this underground trackage is built of rails of 85-lb. weight and the remainder of rails weighing 45 lb. to the yard. Butt-entry and room tracks are laid with 25-lb. rails.

Of the two tracks intended for the storage of empty cars, only one—that in direct line with the dumps—is in service at the present time. The second track was planned originally for storage of cars used in the Marker bed but operation of this measure has been temporarily suspended. When the Taggart and Marker seams were worked simultaneously, inasmuch as their thicknesses are 58 and 42 in. respectively, two sizes of cars naturally were required. Consequently a means had to be provided to facilitate handling trips of each size separately at the dumps.

The fact that load and empty storage tracks are level has already been mentioned. The movement as a unit of 36 cars in a standard trip through the dump house is quite simple, as illustrated in Fig. 3. At the end of the empty storage tracks, away from the dump house, is placed a hoist to which is attached a $\frac{3}{4}$ -in. steel head rope. This is fastened to a trip of loads at the entrance to the dump house by means of a chain and serves to feed the cars through, and to spot them in, the rotary dumps.

To the end of the head rope is permanently attached a $\frac{3}{8}$ -in. steel tail rope, which is paid out along the entire length of the empty storage tracks while the trip being handled traverses that distance in its passage through the dumps. This tail rope drags the head rope back to the starting point after the passage of each trip. The tail rope is attached to a 7 $\frac{1}{2}$ -hp. hoist located in a pit at the point where the two load storage tracks meet at the dump house, as illustrated in Fig. 4. Both hoists are remotely controlled from the dump house where only one man is stationed.

This scheme has functioned satisfactorily throughout the three years that the plant has been in operation. Its simplicity eliminated those delays which occur when other more complicated mechanisms are used for feeding a trip through a dump. The flexibility of the ropes obviates the necessity for exact alignment, and while the hoists are sheltered they are conveniently accessible for quick repairs. A broken rope can be spliced or replaced without much loss of time. Freezing weather does not interfere with the correct functioning of the mechanism.

As originally installed, the main trip-feeder hoist was driven by one 20-hp. induction motor through a single reduction gear transmission. It was found that the capacity of the motor was inadequate for the duty of the hoist during freezing weather, and trip movement was altogether too sluggish. This trouble was remedied as indicated in Fig. 5, by attaching an ad-



Fig. 7—Open-End Pillar Extraction

Practically all of the coal produced in second mining is recovered from butt cuts made across the end of the pillar. The miner first loads out the tight corner and then moves progressively outward in cleaning up the remainder of the cut, timbering as he goes. All loaders are instructed to timber in accordance with fixed standards and to set additional roof supports wherever necessary.

ditional 20-hp. motor to the end of the countershaft, which was increased in length to accommodate another gear. The second motor and a magnetic control panel were taken from the hoist originally intended for feeding the rotary dumps and the second load storage track, with trips of low cars serving the Marker bed which is not now being operated.

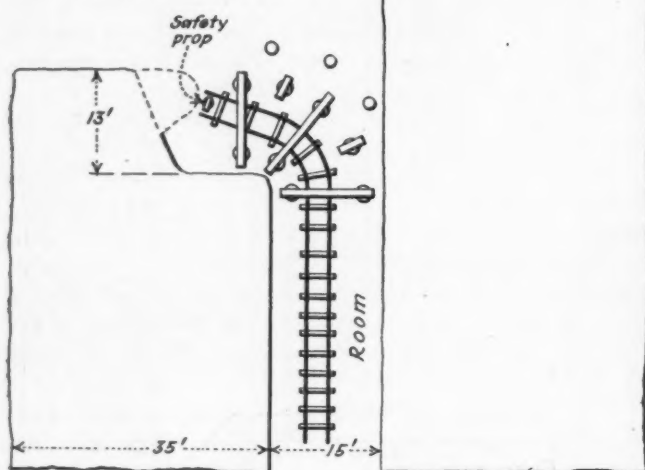


Fig. 8—Mining at the End of a Pillar

This shows actual conditions existing at the end of a pillar as indicated in Fig. 7. The tight corner has here been loaded out and a safety prop set in the middle of the track. The cross pieces or collars are radially disposed so as to hold the span of the roof over the track curve at the end of the solid pillar coal.

In the Derby mine the Taggart bed is about 58 in. thick, of clean, hard coal with a hard fire clay bottom. The measures immediately over the coal are chiefly of shale, which in places is replaced by sandstone. Strata of massive sandstone predominate in the structure of the cover, which varies in thickness from nothing at the outcrop to about 1,400 ft. at the point of highest surface elevation.

The Derby mine was opened June 16, 1923. Operation of the mine during the last six months of that year yielded 182,000 tons; in 1924 about 518,000 tons were produced; in 1925 exactly 679,881 tons and so far in

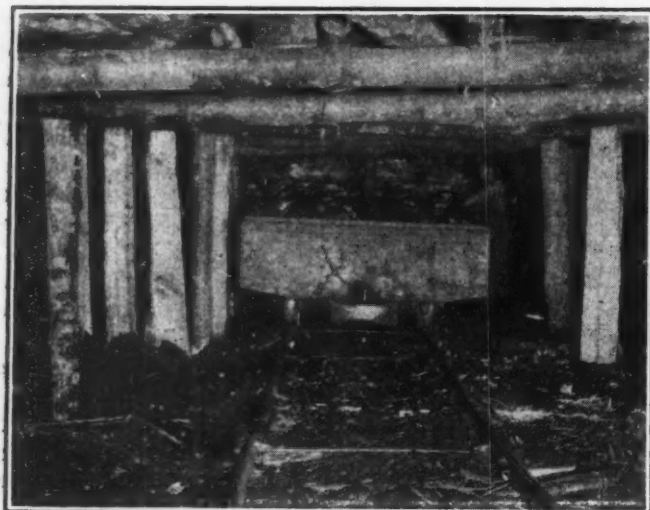


Fig. 9—A Room in the Derby Mine

In many coal mines attention is centered on making pillar workings safe with only slight attention being paid to the elimination of danger in rooms. The Stonega Coke & Coal Co. requires its men to "play safe" at all times regardless of the cost in timber. On each side of, and 2 ft. from the track a single row of props on 4-ft. centers is placed. Wherever necessary crosspieces or collars are set on top of these posts.

1926 the rate of mining has been about 3,000 tons per day. This approximates the capacity for which the plant was designed. The quick acceleration of output during the early stages of development is attributed in a measure to the use of five Joy loading machines. These loaded out two cuts per shift from the entry places in which they worked.

The mine is laid out on a multiple-entry system in which the cross entries as well as the mains are four in number. Two entries on one side accommodate the needs of haulage and intake air and the other two are return airways. Between the two pairs of entries is a pillar whose continuity is broken by crosscuts at the comparatively wide interval of 300 ft. These entries



Fig. 10—Heavy Haulage Track

Good track is as essential to successful mine operation as any other factor. This track is built of 85-lb. steel laid on large ties closely spaced. Note the long radius of this main turnout curve.

are 10 ft. wide and are protected by barriers from 150 to 300 ft. wide depending upon the thickness of the cover over them. Main entries are on 50-ft. centers; cross and butt entries on 40- to 60-ft. centers. At present only one of the two passages constituting the main entry is provided with track, the intention being to lay track in the second if and when necessary. Room entries are driven in pairs, at right angles to the cross entries. Rooms are driven 15 ft. wide and 300 ft. long, but their distance apart varies from 50 ft. where the cover is comparatively light to 70 ft. where it is heavy.

TWO LOCOMOTIVES TO EACH SIDETRACK

Sidetracks are established on the cross entries and each serves a pair of butt entries, as indicated in Fig. 6. The rooms turned off each of the two butt entries are served by one gathering locomotive so that two of these machines are assigned to each sidetrack. During the gathering operation these locomotives do not interfere with each other to any extent. At no time during shifting maneuvers is either of them required to trespass upon the main line of the cross entry.

Storage facilities are provided for 30 empty and an equal number of loaded cars. The outside portion of the cross entries, or that part which adjoins the butt entries, accommodates the empty storage track which is provided with an outlet turnout to the main-line track. Loaded cars are stored in a chute which parallels the cross entries. The two haulways of the butt entries

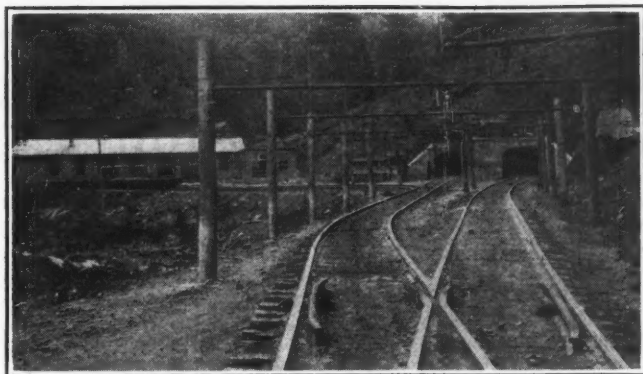


Fig. 11—Guard-Rail Clamps at Frog

These clamps hold the guard rails securely in position abreast of the frogs. This accessory is secondary in importance only to the guard rail itself and should be installed if maximum freedom from derailments is desired.

are interconnected through No. 1 room which extends between them.

The gathering locomotives negotiate swiftly and without fear of derailment the curves at A, B and C because these are of 66-ft. radius. These curves, and those on the cross entries which join the sidetrack, are laid out by the use of a transit, with exact measurements for deflection angles, chords and tangents given.

Mine-car turnover during a day's run is a true measure of the efficiency of this sidetrack. As the mine produces 3,000 tons per day and as 340 mine cars with a capacity of 3 tons each are in service, each carries three loads of coal to the tippie during the day. Incidentally, this sidetrack layout is but one of a number of standards originated by the company for use in all its mines.

By reason of the fact that the cover over the Taggart seam in the Derby mine, where pillars are now being extracted, is not generally heavy, and because the coal is hard, that portion of the pillars along the break line is not crushed to the degree at which pick-mining can with facility be employed. Machine-cutting, consequently, is the first step in the mining of pillar coal. Undercutters making a 6-ft. kerf are used for this pur-



Fig. 12—Dwellings at Derby Mine

The hollow tile construction here followed affords both warmth and durability. High upkeep expense is thus avoided. The town is made up of 70 four-room and 20 five-room houses. As the valley in which they are located is narrow they are set in two long rows with a well drained road between them. The mine tippie may here be seen in the background.

pose. Practically all of the coal of second mining is recovered by making cuts, about 13 ft. long, which are butted across the end of the pillars.

In Fig. 7 is shown a typical example of this work. The cut is slightly inclined in such a manner that a small obtuse angle is enclosed between the butt and face of the working place. When the butt face is thus inclined the coal in the tight corner manifests a lesser tendency to hang. The roof over the track curve may be supported by radially disposed cross timbers, but these are not always required. Elsewhere the place is made safe by props with or without cap pieces, as conditions warrant, on centers of 4 ft. as a minimum. A safety prop is always set in the middle of and at the end, of the track.

The miner begins loading out at the protected corner of the cut and continues the operation progressively outward to the end of the pillar, timbering as he goes if further support of the roof is necessary. This practice affords him the greatest degree of safety. Actual conditions existing in the place indicated by Fig. 7 are shown in Fig. 8. Thus far recovery in the Derby mine has amounted to 91 per cent.

Another article will appear soon, dealing with conditions and methods employed in the Exeter mine of the Stonega Coke & Coal Co.

Bituminous Coal Industry Outstrips Competing Industries

The end of the war saw a sudden check to the rate of increase in the use of bituminous coal. For the six years from 1920 to 1925, inclusive, the average output was only 5 per cent in excess of that for the decade 1910 to 1920. This check was partly due to oil and hydroelectric competition, but the larger portion of it must be attributed to the development of more efficient methods of utilizing the coal itself. The indications are that the growth in demand is beginning to outstrip the economies in utilization and also the use of petroleum and hydroelectric power and that we are entering upon another period of pronounced increase in coal consumption from year to year.

From the statement showing the expansion of American industry and the increase in the production of bituminous coal during the last half century, it may be seen how adequately the bituminous mining industry has met all the demands laid upon it by our rapid growth in manufacturing and transportation. It remains to point out that the fuel has been furnished with great regularity and at low mine prices.

Interruptions in the supply of bituminous coal are never brought about by any technical difficulties in the operation of the mines. At all times there has been adequate mine capacity to meet all demands. Interruptions in production due to causes within the industry occur only in case of labor difficulties; interruptions in supply to consumers sometimes have been caused by the failure of our transportation system to move the coal offered it. This latter source of interruption was particularly prevalent during the years immediately following the war, but as a result of improvements in railroad equipment and management this has now become of rare occurrence and slight importance.—Walter Barnum, president, National Coal Association.

Open Lights Believed Most Probable Cause of Gas Ignition in Rockwood Explosion

Old Mine Has Encountered Almost Every Conceivable Natural Contortion of the Coal Bed—Safety Measures Are Thus Hampered—Large Accumulation of Gas Must Have Been Present—Dust Played Some Part

By J. H. Edwards

Associate Editor, *Coal Age*, Huntington, W. Va.

AT THE MINE of the Roane Iron Co., at Rockwood, Tenn., on Oct. 4 last, 27 men were killed by an explosion of gas that affected only a small section of the underground operations. In several respects this mine is unusual especially for a bituminous coal operation in the Appalachian region. The particular section in which trouble was experienced on Oct. 4 was the same one wherein 10 men lost their lives in 1925 in an explosion following a fire.

Rockwood is located in the east-central portion of Tennessee, about 45 miles by airline west and a few miles south of Knoxville. The mine was opened in 1868 to furnish fuel to one of the first iron furnaces ever built south of the Ohio River. Production has been practically continuous for the past 58 years, the longest shutdown on record lasting only four months.

Although this mine covers an unusually extensive area the output is still handled through the drift opening or rock tunnel that was driven in 1876 and which intercepts a slope driven on the coal from the crop line 150 ft. higher up on the mountain side.

The coal bed is extremely irregular in thickness, continuity and pitch. Its condition might be likened to that of a sheet of paper of irregular thickness that has been badly torn, crumpled into a ball, and then opened out again just enough so that the general shape of the sheet can be roughly distinguished. Wants, faults and pinches are numerous, and the coal varies in thickness from a few inches to perhaps 75 ft.

One main entry follows an almost level but winding course for nearly two miles. Another dips some 500 to 600 ft. in a distance of slightly over a mile. There is a difference in elevation of approximately 1,300 ft. between the highest and lowest points that have been worked in this mine. The coal is known as the Sewanee

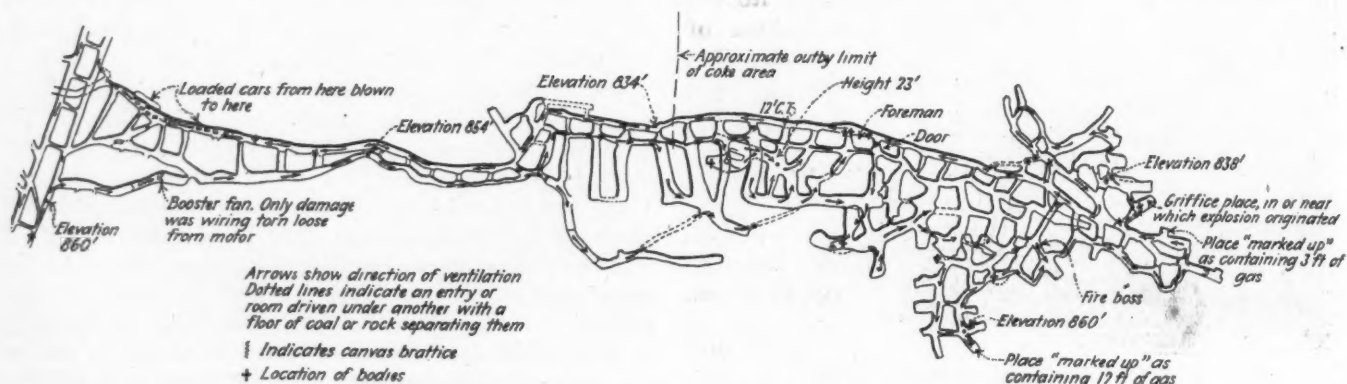
bed, and the output amounting to from 500 to 600 tons per day is coked in beehive ovens located close to the tippie.

As to the generation of gas, this operation is considered, by the Tennessee Division of Mines, as being in "Class A." Two fire bosses, locally called gas bosses, are employed in each entry. One goes on duty at 6 p.m. and is relieved at 3 a.m. by a second who is supposed to stay in the mine until all men are within their working places.

Of the 100 or more working places, from four to ten per day are usually reported as gassy. The emission of gas, however, is extremely uncertain and irregular. A certain working place may not show gas for weeks at a time and then it may suddenly strike a feeder that will necessitate shutting down the whole entry for weeks.

When the fireboss reports gas in the place it has been the practice to "fan" it out with a jacket, or to extend the line brattice closer to the face. The mine is ventilated by a force fan located at the outcrop above the main portal. This machine, which is motor-driven, delivers approximately 145,000 cu.ft. of air per minute. Beside it is an old steam-driven fan which serves as an auxiliary, and which can be started in a few minutes. Its driving engine operates on steam supplied by the blast furnace boiler plant.

On the entry in which the recent explosion occurred, a multi-blade booster fan, rated at 25,000 cu.ft. per minute against a 1½-in. water gage, is used. This machine is driven by a 15-hp. 440-volt induction motor of the standard open type. Power for this motor and for operating two hoists located some distance outby from the Rogers entry, is brought into the mine at 2,300 volts through a borehole. The transformers are located near



Rogers Entry Where the Explosion Originated

The Griffice place, where it is thought that the gas was ignited by open lights, is about 2,000 ft. from the Bryson Dip. It is on the return air from two places that the fire

boss marked up as containing gas. Beyond the booster fan no electricity is used in the Rogers entry. One of the state mine inspectors described this passage as being

very wet and seemed of the opinion that dust played but a small part in the explosion. As a result explosive violence was confined to a comparatively small area.

one of the hoists, and the 440-volt rubber-covered lines to the booster fan are carried on pin insulators along the rib of the rope haulway on the Bryson Dip.

No direct current is used in the mine. All coal is shot off the solid, and mules are used for gathering. Main haulage is by rope hoists and gasoline locomotives. Haulage from the Griffice place on the Rogers entry, where the explosion is supposed to have originated, is as follows: 2,000 ft. in the Rogers entry to Bryson Dip by mule, 2,500 ft. by single rope hoist up Bryson Dip to the top of Moulder Hill, 9,000 ft. by gasoline locomotive, then 900 ft. by tail rope hoist up a 400-ft. slope and through the 500-ft. rock tunnel to the outside. Up to the time of the explosion open lights were used throughout the mine.

The explosion occurred at 9:20 a.m. on Oct. 4, when 200 men were in the mine. The first news of its occurrence was brought to the outside about a half hour later by the coupler or brakeman of the gasoline locomotive. The main ventilation of the mine was not affected and workmen in other sections knew nothing of the trouble.

MEN WERE PROMPTLY WITHDRAWN

N. D. Wilson, superintendent and mine foreman, immediately started in to learn the extent of the damage done and to have the men on other entries notified to come out. Those unaffected were out of the mine by 10:30 a.m., or a little over an hour after the explosion. A short distance inside Mr. Wilson met Will Johnson driving the gasoline locomotive and bringing out Ebbie Davis, hoist runner at Moulder Hill, who was found at his post in a dazed condition. After talking with Johnson, Wilson decided that helmets were needed, so he came back out to secure a crew.

Deputy state mine inspector A. J. Holden who had made an inspection of this operation on the day before, and who was at a nearby ore mine, was soon on the scene and took charge of the rescue work. The first helmet crew consisted of N. D. Wilson, superintendent, Harry Dale, hoist runner, Ed. Landis and John Millican, all of Rockwood. They, together with A. J. Holden immediately went into the Tigie entry from which they rescued William and Arthur Tigie, miners, and Eston Boles, driver, who had barricaded themselves in.

The Tigie entry hoist runner, W. C. Elliot, who refused to retreat back of the brattice with the Tigie brothers was found dead near Bryson Dip. The three men were rescued within 1½ hr. after the explosion.

Next the rescue crew proceeded down the Bryson Dip and with helmets on went into the afterdamp on Rogers entry. They found this entry impassable because of wrecked cars. It was 11 a.m. when they reached this point. They soon concluded that no men could be alive in the Rogers entry, so they returned to the outside to organize for subsequent rescue work.

In a short time Bureau of Mines car No. 10, a helmet crew from La Follette and another from Pruden arrived at Rockwood. One crew was placed in charge of A. J. Holden, another in charge of Dave Long of La Follette, and the third in charge of George B. Thom, state mine inspector.

It was agreed that there might be some hope that the two men who had been working on the Stevens entry, a return split from the end of Bryson Dip, might have barricaded themselves in, and accordingly attention was turned to this entry. But the bodies of the two men in question were found about 1,000 ft. from

the face. Apparently they had succeeded in traveling this distance toward the outside before the afterdamp in the return air caught them. After finding these bodies it was agreed that there was no chance for other men to be living, so greater care was taken in the remaining rescue work.

On Oct. 7, three days after the explosion, all bodies except one were out of the mine. This one, which



Fan, and Portal of Rope Haulway

The portal is in the lower right foreground and the two fans are installed at the top of the incline. The insulated pipe line supplying steam from the blast furnace boiler plant to the auxiliary fan can be seen alongside the track on the incline. The mine was originally opened by a slope entering from the outcrop and which now serves as an airway.

was concealed by small debris behind a prop close to the rib, was found on Oct. 10. A coroner's jury was present to hold an inquest over each victim as the body was brought to the surface. In all cases the verdict was, in effect; "The victim came to his death by a gas explosion in the Roane Iron Co.'s mine at Rockwood, Tenn., at 9:20 a.m., Oct. 4, 1926."

On Oct. 26, after the Rogers entry had been cleaned up and ventilation restored, a committee consisting of O. P. Pile, chief state inspector; A. J. Holden, district inspector; George B. Thom, district inspector; F. E. Cash, district mining engineer, U. S. Bureau of Mines, Birmingham; Howard Howie and N. D. Wilson, general superintendent and superintendent, respectively, of the Roane Iron Co., made a thorough inspection to determine if possible the cause and origin of the explosion.

It was agreed among these men that the explosion originated from an ignition of gas in or near the Griffice room, and that this ignition probably arose from an open light. The presence of coke indicated that coal dust played some part in the resulting inflammation, but the extent and importance of its rôle was not clear.

If coal dust was the principal factor in flame propagation, it is hard to explain why the coke area did not extend farther toward the side-track where the greatest

Labor Unrest Darkened Pages of Early History Of Anthracite in Schuylkill Region*

Intrusion of General Merchants Into Operating Field Under Lease System Led to Abuses of Which Workers Were Frequently Victims—"Pluck Me" Stores and Scrip Payments Factors in Old-Time Walkouts

By Myron D. Edmonds

Anthracite Bureau of Information, Philadelphia, Pa.

THE ANTHRACITE STRIKE which began Sept. 1, 1925, marked the seventh time within the present century and the third time within four years that hard-coal mining has been tied up by a general suspension. But labor disturbances are almost as old as the industry.

Although anthracite mining as a continuous industry began in 1820 on what is now the property of the Lehigh Coal & Navigation Co., near Mauch Chunk, the first trunk line railroad did not penetrate the region until 1842. The same year the first labor union was formed and the region experienced its first strike.

The railroads have been hauling coal out of the region steadily ever since and the unions have been striking more or less continuously. In the 84 years, 1842-1925, there have been 37 in which serious strikes, many of them embracing the entire region, have occurred. Moreover, the years of so-called "peace" also in many cases have been punctuated by minor strikes involving anywhere from a few hundred to several thousand men. These disturbances have been responsible for losses running as high as approximately 1,000,000 man-days in a single year.

Considering both major and minor strikes, the average loss of time from this cause in the quarter century ended Dec. 31, 1924, was about 7 per cent—roughly equivalent to a general idleness of approximately three weeks each year. From Jan. 1, 1922, to Dec. 31, 1925, the time lost on account of general strikes amounted to twelve months, or exactly 25 per cent. This great series of industrial upheavals seems to have grown in scope and intensity as time wore on and the union grew more powerful.

The story of what happened in the early days is largely a story of events in the Schuylkill coal field. While the industry had its real beginnings in the Lehigh

region in 1820, the completion of the Schuylkill Canal from Philadelphia to Pottsville in 1825 put the Schuylkill mines into active competition. In 1828, the Schuylkill region took the lead as a producer, and until the end of 1857 it shipped more than half of all the anthracite marketed. Up to the close of 1866 it retained leadership, shipping less than half of the total, it is true, but more than either the Wyoming or Lehigh districts. Even as late as 1877, Schuylkill output was approximately equal to that of the Wyoming region.

This production leadership gave the Schuylkill field a moral and intellectual supremacy that lasted, especially in union affairs, long after its relative standing as a coal producer had been lost. Some of the earliest proofs of the continuity of the coal measures, if not the very earliest, were the work of Schuylkill men. In the application of the steam engine to mining the Schuylkill region took an honorable part. The development of gathering railroads was notable there at an early date. The diamond drill got its first big American start in Schuylkill. The power fan for mines and the safety squib are products of this field.

Anything new having to do with coal naturally gravitated to the Schuylkill

region, and labor was no exception. Negro freedmen, with perhaps some fugitives among them, were by no means scarce there, even a century ago, and immigrants from Europe early made the Schuylkill mines their destination. The "labor problem," as it applies to anthracite mining, thus developed there.

The first evidence of a "labor problem" came in 1829. *The Miners' Journal*, of Pottsville, in its issue of July 4, of that year, had this to say under the simple caption "Miners":

"So reprehensible has been the conduct of some of the operatives at this place, that it cannot be passed over without adverting to it. . . . The extravagant



Thomas Stapleton

Still hale and hearty although well past the 90-year milestone of life this man's memory covers nearly the entire commercial history of anthracite. He saw the first trainload of coal leave the region for tidewater all-rail and for over 80 years has watched the growth of hard-coal production. He is the sole known survivor of the strike of 1842 and vividly recalls incidents which occurred in those troubled days.

*First of a series of four articles covering the rise of unionism in the anthracite region.

wages which those miners receive who arrive in this country, compared to what they received in their own country, has quite elated them, and it is impossible to have any control over them—the employer being subject to the whims and caprices of those he has employed. The high wages pamper them with the idea of still obtaining more, and knowing their very limited number, they spend the greater part of their time in wandering from one mine to another, after which, if they should be baffled in their object, they return to their old employer. . . .

"In order to induce miners, etc., to come here, we have requested a friend to furnish us with a list of the prices now paid, which is as follows: "Experienced miners, \$1.25 per day; "carpenters, \$1.25 per day; "masons, \$1.37½ per day; "common laborers, etc., 90c. per day."

These wages do not seem extravagant now, but after all they were not starvation rates, either, for in May, 1829, pork was selling in Pottsville at 5c. a pound, butter 12c., flour 4c., potatoes 50c. a bushel and whiskey—then a legitimate and prominent article of commerce—was 24c. a gallon. The price of coal on the Pottsville canal landings was \$2.25@ \$2.50 a ton, and in Philadelphia the wholesale price was \$6 a ton, with the retail price 50c. higher. In August of the following year wages were reduced sufficiently to cut the Philadelphia retail price of coal to the extent of about 50c. a ton.

There were market ups and downs for ten or twelve years and wages fluctuated with the market. Great expansion took place in the Schuylkill trade, and coal shippers became numerous. For the most part these shippers were general merchants holding canal landings, where they brought in commodities needed by the region, and where they purchased the coal which the individual operators hauled in either by teams or on the small gathering railroads. These general merchants, who shipped coal more or less as a side issue, were the first considerable middle interests in the anthracite trade and they did it no particular good.

The year 1842 opened with rosy prospects. The Philadelphia & Reading R.R. had extended its line to Pottsville, insuring competition with the Schuylkill Canal, which had hitherto enjoyed a transportation monopoly. The railroad provided shipping facilities that were available twelve months in the year. But visions of great things for the trade were marred by an ugly strike, accompanied by violence.

Schuylkill was the stronghold of individual operators. Corporations with both mining and transportation privileges, notably the Lehigh Coal & Navigation Co. and the Delaware & Hudson Canal Co., had developed the Lehigh and Upper Wyoming districts, but efforts to charter mining corporations to work in Schuylkill had always been successfully resisted. As associations of capital were thus impossible, a great landlord and tenant system grew up. A man owning a considerable tract of coal land, unable to develop it himself and unable to get authority for a corporation, was prac-

IT SEEMS ONE of the ironies of Fate that the big anthracite producers have always been blamed for instigating and maintaining one of the most potent causes of labor unrest in the entire region yet with which they have not now nor ever have had anything whatever to do. This is the "company store." In the early vicious days a miner might, and not infrequently did, work all season without receiving a solitary red cent in cash, his entire wages being paid in orders on his employer's store or one in which his employer was interested.

tically obliged to rent it out in parcels on a royalty system. Thus it came about that in most instances the man who operated a mine did not own the land on which it was located. Sometimes he did not even own the primitive improvements, which were of the simplest kind since most mining was above water level and anything like modern breakers were unknown. The operator in most cases had no particular stake, except to make as much money as possible while his lease held good. If times were bad and he failed, as he frequently did, his employees often had to whistle for the pay due them. The real estate could not be attached, because it did not belong to the debtor.

Another condition also developed that was even worse, the company store system. It is one of the little ironies of history that these "pluck me" establishments have always been blamed on the anthracite companies, whereas they were originated and fostered entirely by individuals. With the growth of mining corporations in the hard coal country the company store languished, because the largest anthracite companies do not and never did have such stores.

The whole set-up in the anthracite region was favorable to speculation, and many people plunged. General merchants, who were interested in coal as shippers, got into the business as operators, either on their own account or in conjunction with producers whose output they handled.

It was a "wrong and injurious system," as the *Miners' Journal* pointed out, because it meant that a miner would be paid in part, and sometimes wholly, by means of orders on a store which his employer owned or in which he was interested under cover. Thus the operator made two profits, one on the employee's labor and another on his store bill. Had these stores asked only current prices it would have been bad enough, but their overcharges were outrageous, prices sometimes being 100 per cent and even more above going market quotations. Many a man worked for a whole season and never got a cent of real money as wages.

When the store people got into the coal business, many operators, as a matter of defense, got into the store business, and so the vicious circle spread. The *Miners' Journal* openly counseled the miners to make specific wage contracts, stipulating what wages were to be if paid in cash, and adding a percentage sufficient to wipe out store profits, if payment was to be by orders. At the same time the *Journal* sympathized with those who wanted to mine coal and avoid storekeeping.

Toward the end of June, 1842, the pot boiled over, and about half the miners in the district went on the warpath. This "turn-out," as the news reports quaintly styled it, centered around Minersville, where the complaint was that wages were paid in orders instead of cash. On Saturday, July 9, a mob, armed with clubs, came into Pottsville from Minersville and drove the laborers away from the landings. Four militia companies were called out, and the chief burgess of Potts-

ville issued a riot proclamation, but on Monday, July 11, another mob of about a thousand men invaded the town. Chief Burgess Crosland and District Attorney Hughes managed to pacify the men, and even addressed them in an impromptu mass meeting. The upshot was that the men organized a loose labor union, and named a committee of four to wait upon the mine owners. This committee consisted of Dr. Thomas Brady, Edward Colehan, Edward O'Connor and Robert M. Palmer. The *Miners' Journal*, while sympathizing with the men, was against the strike and especially opposed the group of men who were advising the strikers. It said bluntly that two were lawyers, one a slanderous doctor, one a politician, and that the rest were "politicians, pettifoggers and idlers." The operators refused to see the committee on the ground that its members were not their employees. This course has been often followed by employers since.

At this the strike began to crumble, and some men went back to work. It flared up again, however, when a mob drove workers from Wadesville mine. Mobs also attacked Cockill's mine and the Milnes & Haywood operation, and conducted a night raid, with stones and guns, against the house of a miner who lived near Minersville and was employed by Samuel Heilner & Son. Dr. Brady issued an "Address to the Public," which seems to have helped inflame matters. A number

of men were arrested as rioters, but there appears to have been only two convictions, each of those sentenced getting six months and costs amounting to about \$100.

The committee continued its activities, largely in the form of addresses to the public, in which demand was made for wage payments in cash, and for the passage of an act making unpaid wages a lien on the land, regardless of ownership. General interest gradually waned, and the first anthracite strike, engineered by the first union, faded away.

The sole known survivor of the strike of 1842 is Thomas Stapleton, of Tamaqua, who as a child of nine years took his first job at the mines that spring. He received \$1.50 a week for six 10-hr. days at the old East Mine, near Pottsville. At this writing he is still a hale and hearty man, though nearly ninety-four years old. His memory is still good. He recently recounted an incident which, he says, had to do with a strike. He knows it was not as late as 1849, and as the only strike of consequence before that year was in 1842 it seems likely that it happened then. He was with his mother in a Pottsville "company store" when a husky miner walked in with his tools on his shoulder.

"Well, McDonald," asked a member of the firm, "what is it you want?"

"More money, less work, and more grog," said McDonald, casting his tools on the floor.

Ten Years Ago in Coal Age—Jan. 6, 1917

EDITORIAL. Personnel of U. S. Shipping Board, nominated by President Wilson on Dec. 22, 1916, considered favorable to intelligent handling of an interesting experiment. Herr Ballin, of the Hamburg-American Line, warns of an excess of merchant tonnage when hostilities cease and normal activities are resumed. But view is held that this is a promising field for investment.

FEATURES. Article by Colonel Warren Roberts treats of improvements in the preparation of bituminous coal. Latest apparatus, consisting of Marcus combined horizontal screens and picking tables with shaker loading booms, is described.

C. M. Young, of the University of Illinois, describes the operation at the Missionfield Coal Co. at Danville, Ill. Here pyrite taken from coal produced in a stripping operation is crushed, cleaned and sold for \$3.50 per ton. About one car of pyrite is obtained for every 20 cars of coal mined in the stripping, and approximately 12,000 tons of pyrite is produced annually.

MISCELLANEOUS TECHNICAL. Mine Inspectors Institute in annual meeting for 1916 discusses growing use of permissible explosives in mines. In 1913, 1914 and 1915, the explosives used in the mines of Alabama were approximately 68 per cent permissible and 32 per cent black powder. British Columbia discontinued using black powder in 1905 and substituted low-grade dynamite. Since 1913 these mines have been using permissible explosives only.

LABOR. "Cold weather and Christmas have caused cessation of hostilities here as well as in European field of war."

Strike of 800 miners at Greenwood colliery of Delaware and Hudson Co. of Taylor, Pa., finally ended.

Lehigh & Wilkes-Barre Coal Co. announces an increase of from 7½ to 28 per cent in pay of door-tenders. Unable to obtain boys to do this work at \$1.21 per day of 8 hr.,

and forced to use men for this purpose who are paid and are better fitted for work requiring more strength and intelligence, pay of door-tenders is raised to \$1.37 per 8-hr. day. Boys with company one year or longer to receive \$1.55 for 8 hr. Increase affects 1,000 boys.

First biennial contract negotiated between United Mine Workers and the recently organized Oklahoma Coal Operators Association. Under contract, 8,000 men will receive increases in pay of from 5 to 15 per cent, and more favorable working conditions.

FIELD AND TRADE. Four hundred sixty-three acres of coal lands in Cambria Co., Pa., are sold for \$255 per acre—highest price ever paid for coal lands in that county. Forty years before, this same land sold for \$3.90 per acre.

General shortage of coal throughout the country has resulted in unprecedented demand for Tulsa Co., Oklahoma coal. As a result, 10 new mines have been opened and all mines in county are working at full capacity, most of the coal being mined from 100-ft. depth.

MARKETS. *Anthracite.* Less anthracite in distributing centers at this time of year than ever before. Consumers and dealers stocks are low because of shortage resulting from protracted cessation of operations in mining regions and because of congestion and delay in transportation. Egg, stove and nut quoted at \$8.50@\$9 per gross ton, f.o.b. tidewater; pea, \$6@\$7; buckwheat, \$5.50@\$6; rice, \$5@\$5.50; barley, \$3.75@\$4.

Bituminous. Present situation considered tense and may become acute unless there is a material improvement in transportation conditions. Buyers who were holding off for lower prices are coming into market in large numbers. Gross average price of 12 representative bituminous coals for week ending Jan. 6, is \$5.16@\$5.53 per net ton, f.o.b. mines. Prices vary from \$7@\$7.50 for Pocahontas and New River, to \$4@\$4.25 for Williamson and Franklin Co., Ill., mine-run and screenings.

Safe Methods of Firing Shots at Dawson Mines

No Coal Shot from Solid—All Switches Opened by Motorman on Last Return Trip—Shots Are Electrically Fired from Surface by Means of Special Switch Only After All Men Are Out of Mine

By W. C. Holman

Stag Canon Branch, Phelps Dodge Corporation, Dawson, N. M.

TWO FACTORS are considered essential to the safe firing of shots in the Dawson mines of the Phelps Dodge Corporation at Dawson, N. M. One of these is the requirement that all men must have reported out of the mine before a single shot is set off. The other is that all shots must be electrically detonated from the surface.

When all the men of the day shift have reported out and all animals have been brought to the surface, the powder car is attached to a locomotive and taken to some convenient point in the mine. This car is of special construction, being built entirely of wood and lined with either asbestos board or beaded ceiling. The

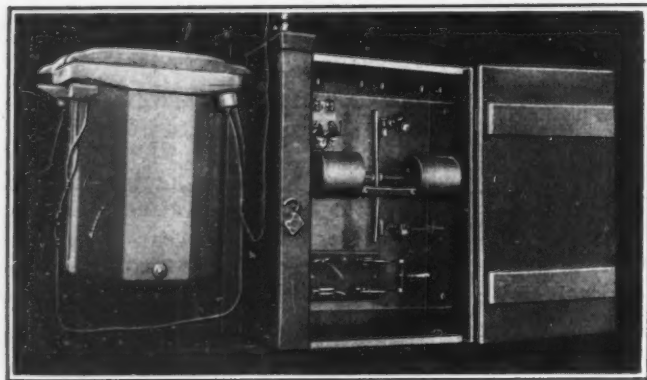


Fig. 1—Special Switch for Firing Shots

To the left of the picture is the transformer by which the mine potential is reduced to 110-volts. The box in the center contains the switches and solenoids by means of which the sliding contactor closes the firing circuit. The release switch is just visible in the lower left-hand corner of the box. This box must be closed and locked while shotfirers are at work.

body of the car has an inside length of 5 ft., is 2 ft. 6 in. wide and 10 in. deep, and has a hinged top to make the contents easily accessible. It is securely mounted on a standard mine-car truck and insures safe transportation of explosives into the mine.

On the return trip the motorman opens all switches, thus shutting off the current from the mine. Before the shotfirers enter, they make certain that a box containing a special switch, known as the "shooting-box switch," is closed and locked. If this box is open or unlocked it is evidence that the circuit, through which the shots are fired, is closed or can be closed by anyone on the surface. On their way into the mine, the shotfirers also make certain that the motorman has opened all switches on the power circuit and that the mine is, therefore, electrically "dead."

It is the duty of the shotfirers to carry all powder and caps from the powder car to the places that are to be shot. Upon arriving at a working place, it is the first duty of the shotfirer to examine it. All bug-dust must be removed from the machine cut and thoroughly wetted down. Shots must not be loaded or fired in places that are dry and dusty or ones that have not been properly undercut. No coal is shot from the solid

and three holes, one in the center of the face and one 12 in. from each rib, are usually required to break down the coal. These holes, drilled by the miners, must be at least 2½ ft. deep and properly located, or they will not be loaded.

After assuring himself that the place is safe in every respect the shotfirer proceeds to load and tamp the holes. explosives and detonators must be carried and kept separate up until the time of loading. The coal at the Dawson mines is shot with "Apache A" permissible powder, using No. 6 electric detonators. Not more than 1½ lb. of this explosive may be used in any one hole and the charge is usually air-cushioned since this practice has resulted in the production of an increased proportion of lump.

After all holes in the place have been loaded and tamped, they are connected in series to the firing wires which are maintained in proper condition, up to the working faces, by the underground electricians. The use of detonator leads as breast wires, or for any purpose other than that for which they are intended, is strictly forbidden. All unused powder and detonators are placed in separate sacks and returned to the outside by the shotfirers. Explosives and detonators are thus effectively kept apart. On their way out, the men close all switches. Upon reaching the surface, they report to the lamp man who has charge of shot firing for all of the mines.

When all are out, the shots are fired through the "shooting-box switch," using 110-volt alternating current. This is carried into the mine by the trolley and feed wires and, from these to the working faces, by the shotfiring wires. A 110-volt circuit is used for shooting, in preference to one of 250 volts, because it produces a much lower spark or flash. Small Wayne bell-ringing

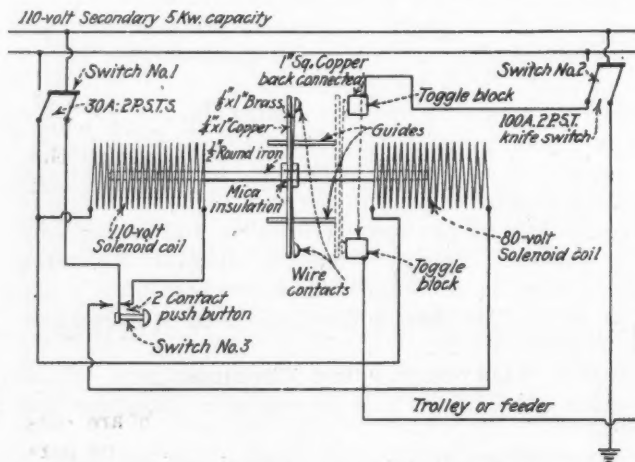


Fig. 2—Wiring Diagram of Shooting Switch

This switch, designed by W. A. Harr, chief electrician of the Dawson mines, controls the firing of shots in mines Nos. 1, 2, 3 and 6 from the surface. Similar switches are installed for other mines in this group. The current is carried underground by the trolley and feed wires and, from these to the working faces, by shotfiring wires.

type transformers are now being installed which will give a voltage of from 7 to 35 on the shotfiring circuits.

Fifteen minutes after the shots have been fired, the shotfirers again enter the mines and inspect all working places for missed holes, condition of brattices, doors and ventilation. Missed holes are "dead lined" and reported

reau of Standards, Department of Commerce. The tests so far completed also appear to warrant the use of slightly higher working stresses in the steel than are usually employed in other types of structures.

The primary reason for conducting these experiments is in connection with the establishment of regulations for the government of coal mining operations on leased public lands of the United States. These regulations specify the use of certain stoppings to resist explosions of a certain strength. As there were no data available on which to base such specifications, these tests were instituted.

The slabs are subjected to explosive charges of black powder in a specially designed chamber. Both plain concrete slabs and those reinforced with steel in varying amounts and in various shapes are being tested. The slabs are 5 ft. square and either 8 or 12 in. thick. The pressures act on a surface 4 ft. square. Although the testing is still in progress, the results so far obtained indicate that the stresses developed by the explosion are about the same as would be obtained with static pressures of the same intensity.

RESULTS ARE ENLIGHTENING

Tests thus far conducted have yielded the following results: A slab which had one per cent reinforcement failed by shearing along the bearing edges at a pressure of about 45 lb. per sq.in. In this slab the steel bars did not extend past the supports. Another slab tested had the same amount of steel, but in this case it was carried past the supports. This slab failed by tension in the steel at a pressure of 75 lb. per sq.in. No shear cracks were observed. A slab which had one per cent reinforcement but which had alternate bars bent up to take the shear failed at 47 lb. per sq.in. by blowing out at the top. The reinforcement in all these slabs was placed only across the width upon which the pressures acted, leaving about 8 in. not reinforced. Although it was not anticipated that pressures would act on these areas, this is what happened in the case of the last-named slab. It is perhaps fortunate that the slab failed in this way, because it shows the importance of carrying the steel well into the grooves cut in the sides, top, and bottom of the mine opening. A slab of the same type as the previous one, but with only half the reinforcement failed by tension in the steel, at a pressure of 50 lb. per sq.in.

Another Conveyor Installation



New Plant at the Galloway No. 15 Mine

Some months ago the tipple and washer were destroyed by fire. A charge of dynamite placed at the far end of the bridge saved a part of the trestle near the slope. This, however, had to be rebuilt to conform to the new plan of dumping the mine cars on the slope side of the creek and moving the coal from there to the tipple on a 36-in. belt conveyor. The tipple is equipped with shaker screens, and the washer with two 400-ton jigs and a 25-ton table.

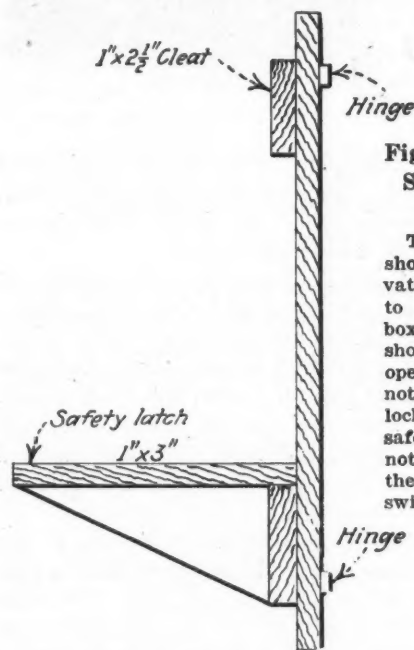


Fig. 3—Details of Safety Switch Box Cover

This illustration shows an end elevation of the door to the "shooting box." Unless the shotfiring switch is open, this door cannot be closed and locked because the safety latch will not pass between the blades of the switch.

in writing, and the miners are not permitted to work in such places until they are made safe.

In Fig. 1 is shown a photographic view, and in Fig. 2 a diagrammatic drawing, of the special "shooting-box switch" previously mentioned, which is used for firing all shots in mines Nos. 1, 2, 3 and 6. Referring to Fig. 2, switch No. 1 is a contact switch and when closed, excites the 110-volt solenoid. This magnetically holds the contactor open. When switch No. 2 is closed, the 80-volt solenoid is energized and draws the contactor along the guides and against the toggle blocks as shown by the dotted outline. These blocks serve to insure a positive contact and the circuit is thus closed and the shots fired. To open the circuit, the push-button switch No. 3 is closed, thus de-energizing the 80-volt solenoid and releasing the contactor which then slides back to the "off" position.

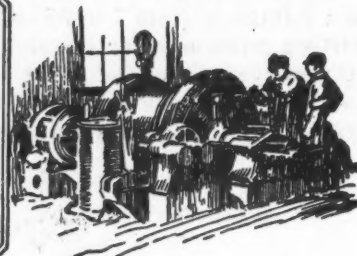
Details of the safety cover on the door of the "shooting box" are given in Fig. 3. When the shooting circuit is closed, this cover cannot pass between the blades of the switch and the door cannot be closed. But when the firing circuit is open, the safety projection on the door fits into the switch and the door can be closed and locked. An open door on this box, therefore, signifies "danger," and a closed and locked door "safety," to the shotfirers.

Ample Steel Reinforcement Important In Concrete Mine Stoppings

Reinforced concrete mine stoppings, which are employed to prevent explosions penetrating from one portion of a mine to another, should have the steel reinforcement carried well into the grooves cut in the sides, top, and bottom of the mine opening, if the barrier is to resist explosion pressures, according to recent tests conducted by the Bureau of Mines and Bu-

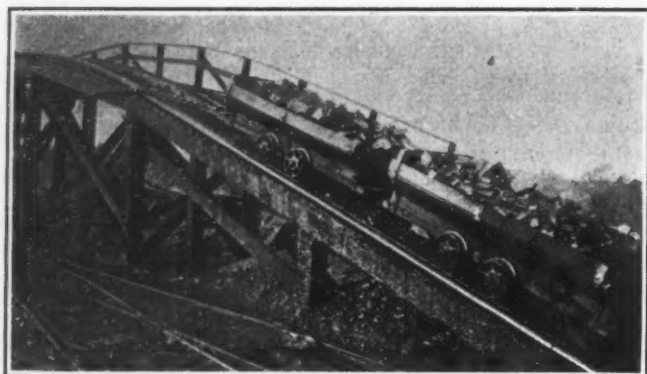


Practical Pointers For Electrical And Mechanical Men



Two-Man Job Is Done by Simple Sheaving Device

About a year ago while I was going through a large mine in Alabama the foreman asked me to look at the top of a 30-deg. slope which taps an area of coal that is displaced 110 ft. below the main area of the mine. The cars are handled on this slope by a single-rope electric hoist and the knuckle of the loaded track is



Trip Approaching the Knuckle

The chain is sliding on the greased 4-in. pipe. At the knuckle the trip is slowed down in order to reduce the whip of the rope as it leaves the pipe and straightens above the track. The heavy guard rail which may be seen on the farther side of the track is a positive protection against derailment from the side pull of the rope. Before this sheaving device was put into use the rope was lifted to the upper track by two men.

elevated about 6 ft. above that of the empty track. Before the loaded trip is pulled, it is necessary for a man to raise the rope to the knuckle of the loaded track. The foreman asked me to advise him if I should see at some mine a satisfactory automatic device for raising or sheaving the rope to the upper track.

It is peculiar that, a year later, after having visited a number of mines in several different regions, I should find by chance in the same state an arrangement which is doing exactly what the mine foreman wanted. This installation is at the No. 15 mine of the Galloway Coal Co., near Townley, Ala.

This arrangement has been in use for several months and is an idea of M. F. Sparks, the superintendent. Its simplicity is such that it would hardly be safe to say that this is the first installation of its kind. A sloping wall of planks is an old method that has found wide application, but this requires that the tracks be a considerable distance apart so that the slope of the wall will be very "easy." Nevertheless, there are many instances where no such arrangement is used, and where one or two men are employed to do the work which the device here described, costing approximately \$150 installed, does with entire satisfaction.

Galloway No. 15 is a slope mine in the Jagger seam. The slope is on an angle of 22 deg. with the horizontal,

and is 190 ft. long. The portal is across the creek from the tippie and railroad. Trips of seven cars are hoisted up the slope by a single-rope tight-drum hoist driven by a 350-hp. 2,300-volt induction motor.

This hoist is nearly 500 ft. from the slope portal and on the opposite side of the creek; the rope passes through the tippie. This arrangement came about because a new plan was followed in rebuilding the tippie after a fire, which destroyed all except the hoist house. Originally the mine cars were pulled across a bridge and dumped at the tippie, but now they are dumped close to the slope and the coal taken across the creek to the preparation plant by a 36-in. belt conveyor.

The rope-raising or sheaving device is located at the slope portal, and consists of nothing more than a few lengths of 4-in. pipe and a heavy guard rail. The pipe forms a corner of the elevation or trestle leading to the loaded track knuckle. It is fastened by bolts in the under side and the unthreaded ends are butted tightly together so that the whole presents a smooth surface.

Several times daily the pipe is given a coat of black oil so as to make it easy for the hoist rope to slide upon it and to prevent excessive wear on the rope and pipe. It is by this sliding action that the rope is carried to the upper track as the head car approaches the knuckle. The short length of chain next to the trip relieves the rope of short bending and wear along that section of the pipe where the friction is the greatest.

This method of sheaving the cable puts a strong side pull on the head car as it approaches the knuckle. To prevent derailment, a 6x6-in. guard is installed on the inside of the rail on the opposite side from the 4-in. pipe. The corner of the guard that comes in contact with the car wheels is covered by a 3½x3½-in. angle. This guard rail extends down into the slope about 90 ft., and near the end curves inward to the track center.



Preparing for the Day's Run

A grease gun is being used to give the pipe a coating of black oil. Success of this device depends upon keeping the friction of the rope or chain on the pipe to a minimum so that the side pull on the head car will not be excessive. The hoist is located across the creek and on the far side of the tippie, about 500 ft. from the knuckle.

I watched several trips pulled up the slope and in each case saw the rope mount to the upper track without any sign of stress or excessive friction. When the head car approaches within a few feet of the knuckle the hoist is slowed down in order to lessen the rebound of the rope as it slips from the pipe and straightens along the center of the track. Gravity type dogs made of heavy rail and located on the track near the portal would catch or wreck a trip in case it should break loose near the knuckle.

J. H. EDWARDS.

Huntington, W. Va.

Ornamental Ironwork by Torch Embraces Wide Range

In many up-to-date shops, garages and like places, including mine repair shops, oxyacetylene welding and cutting equipment has been installed that is idle a large part of the time. One way of utilizing this spare time

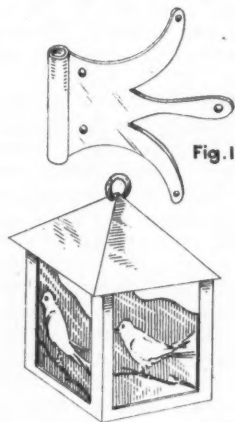


Fig. 2

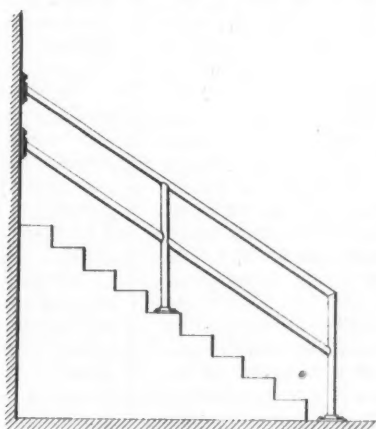


Fig. 3

Some Torch Products

Hand-wrought iron work has always been popular. It is usually believed that the artisans of the Middle Ages excelled in this sort of craft, but the modern means for autogenous welding give the workman of today an advantage of which his brother of the past never dreamed. In this work also the cutting flame is invaluable, as it permits shaping the component parts carefully and accurately before actual fabrication is begun. The above illustration shows a hinge, a lantern and a stair railing all of which have been shaped and welded by means of the oxy-acetylene torch.

at a good profit is the production of ornamental iron work of various kinds and intended for various purposes.

A good example is shown in Fig. 1. Here an ordinary strap hinge has been cut out with a torch and the segments bent out and hammered flat while still hot. The rough edges and hammer marks give an antique effect and such hinges and even hasps are much admired when installed on certain types of cottages and other structures.

Fig. 2 shows a porch lantern the panels of which were cut out of sheet metal with the torch and the sections bronze-welded together. Any suitable designs that the workman's or customer's fancy may dictate can be followed. Frosted or tinted glass can be fixed on the inside with suitable clips. A coat of transparent lacquer will prevent rust and still show the rough beauty of the metal or it may be enameled in any desired shade.

This idea can also be carried out in all manner of interior lighting fixtures such as bridge lamps, floor lamps, table lamps, and the like. Space will not permit me to go much into details on this subject but any good

mechanic will have ideas of his own that he can work out.

Beautiful andirons for the fire place can be easily welded up. For this purpose scrap rod and pipe in many cases can be put to good use. Here again is a good place for the workman to execute his own ideas.

On stairways, fire escapes, and similar places where railings are necessary it is customary to install them of threaded pipe and fittings. A much more permanent and cheaper job can be made by cutting the pipe with the torch and welding all joints. Fig. 3 shows an example of this type of construction.

At most mines there is more or less scrap pipe lying around and much more can be had from a junk dealer at merely nominal cost. This can be fashioned into beautiful iron fences and gates. Size and length of the pieces of pipe matter little as all can be used in desirable designs. Welded grape arbors, trellises for ornamental vines, clothes line racks and the like are other excellent uses for scrap pipe, rods, and bars.

Clearfield, Pa.

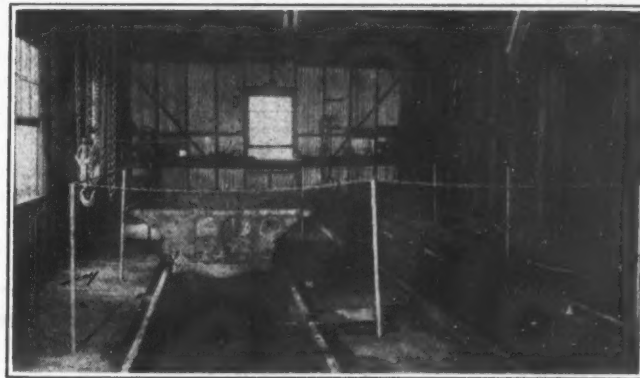
J. F. ELDEE.

Mine Uses Sectional Railing To Guard Repair Pit When Not in Use

Present standards of safety dictate that a locomotive repair pit must be covered or in some way guarded when not in use. That the common method of covering pits by short planks is not entirely satisfactory is attested by the number of pits that are left uncovered even though the planks are at hand.

The use of a railing of special type rather than a cover, has proved highly satisfactory at mine No. 3 of the Pruden Coal & Coke Co., Pruden, Tenn. This railing is shown in the accompanying photograph. The eight posts are made from 1-in. galvanized pipe, and the light chain around the top is in eight pieces. Close to the top of each post are two small holes into which the chains are hooked.

When the pit is to be used, those chains which would be in the way can be unhooked in a few moments. Conversely, it is a small job to hook the chains back into position. This is the feature which makes the railing



Pit in No. 3 Shop of the Pruden Coal & Coke Co.

When a locomotive is brought to the pit for repairs the number of chains unhooked depends upon the nature and extent of the repair job. The railing posts of 1-in. pipe take up but little room. They could be made easily removable by setting them in sockets.

more practical than a covering of boards. A man will hook the chain back into position even though he expects to use the pit again in a few minutes, but in such a case he would not take the time and trouble to place a number of heavy boards over the floor opening.



News Of the Industry



Will Union Miners Accept Wage Cut Despite Lewis' Loudly Reiterated Battle Cry "No Backward Step"?

By Paul Wooton

Washington Correspondent of Coal Age

While there is much speculation as to the possibilities of representation for the Pittsburgh district at the Miami wage conference Feb. 14, observers in Washington fully expect the operators to meet the miners, as provided in the Jacksonville agreement, and they think the Pittsburgh district will be represented. As in 1922, President Lewis of the United Mine Workers is expected to refuse to meet unless all fields are represented. As there is no operators' association in the Pittsburgh district and since the Pittsburgh Coal Co. is operating on a non-union basis, it is going to be hard to find any operator who would be truly representative of the district, but Mr. Lewis may not be overly circumspect in that regard.

Though there is little doubt that wage conferences will be held, the impression here is that nothing will come of them if the union insists upon the continuance of the Jacksonville scale. If the price of coal should remain at a satisfactory level it is just possible that the union operators might agree to extend the existing contract for one year, but with some 85,000,000 tons of coal above ground this hardly is likely. It is known that President Lewis is opposed to the acceptance of any lower scale, but there is a possibility that the organization will overrule him on that point. It is believed that a considerable proportion of the mine workers would be willing to take a cut of \$1 on the day rate and 10 per cent on the tonnage rate so as to insure more work, but there would be no support within the union for a return to the 1917 scale.

It is recognized that a strike at the mines now operating under the Jacksonville scale hardly would be felt, but

there is no certainty that the strike could be thus confined. The men in the mines of northern West Virginia, who worked under union conditions until a year ago, are likely to go out if a strike is called, some think. Discontent may be more widespread in the non-union fields by April 1, if wages are reduced. Some reductions already have been made. It is known that in most districts an effort will be made to maintain the increased scale, but many think this will be found impossible. The inevitable reaction is likely to come at a time when it will have an important bearing on the number of non-union workers who will heed the strike call. To have granted such a substantial increase in wages when it was known the demand could be only temporary is defined by some operators as utter folly.

With the extension of non-union territory there are more rail outlets than there were in 1925, when the carriers estimated that they could handle 8,000,000 tons of coal weekly from non-union mines. Should the men stay at work in non-union territory as constituted at present, it is calculated that more than 9,000,000 tons could be transported—enough to meet the ordinary requirements of the country.

No decision is expected in the Lake Cargo Case until the new agreement is signed. The wage question has entered into that case in an important way. Some of the members of the Commission seem to think that the high wage rate is the real reason why Ohio and Pennsylvania cannot compete with the Southern fields and they probably will want to wait to see what operators there do in the wage matter.

Esch Succeeds Eastman As I.C.C. Chairman

John J. Esch was elected chairman of the Interstate Commission last week, according to an announcement from the offices of the Commission at Washington. Commissioner Esch assumed his new office on Jan. 1, succeeding Joseph B. Eastman. Appointed to the Commission by President Harding in 1921, Mr. Esch was a member of Congress for twenty-two years. He was co-author of the Esch-Cummins Transportation Act.

Gary Sees No Likelihood Of Business Setback

"If business shall be seriously diminished during the coming year it will be the fault of ourselves and not the fault of natural conditions or the lack of consideration and fair treatment by the national administration," said E. H. Gary, chairman of the United States Steel Corporation, in speaking of the outlook for 1927.

"We are rich in resources, including cash balances in the banks. Our banking facilities have been improving year by year ever since the Federal Reserve was established. This is likely to continue. The labor conditions are unusually good.

"Now, as to the future, no one can be certain as to what is going to happen. Many things may occur to change the business situation for the worse at any time. Some of them may be preventable. But with the opportunities as outlined there is no reason why prosperity during 1927 will be seriously interrupted."

To Build 29-Mile Spur In West Virginia

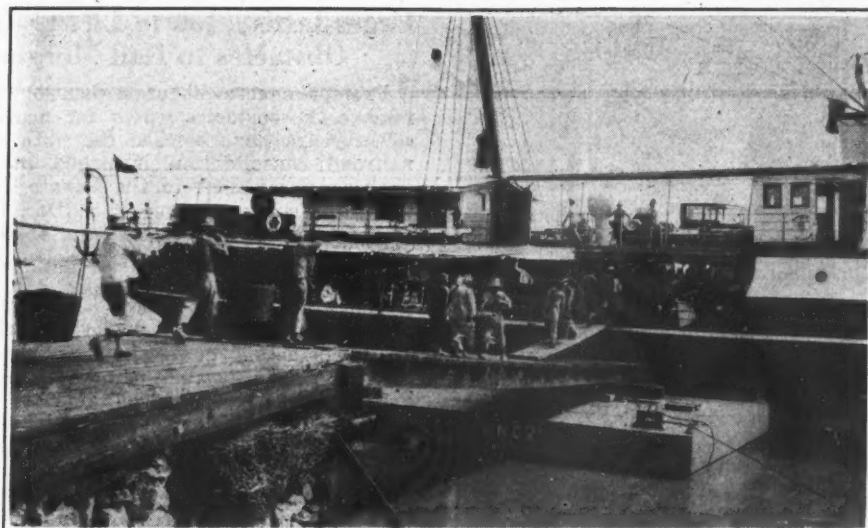
The New York Central R.R. and the Chesapeake & Ohio Ry. have entered into an agreement for joint construction and operation of a new twenty-nine-mile line, which will run from Swiss, W. Va., along the Gauley and Meadow rivers to Nallen, W. Va. The cost of construction is estimated at between \$3,000,000 and \$4,000,000.

Tapping the New River and Kanawha fields, the line will give the Chesapeake & Ohio an improved outlet and the New York Central a new outlet which will be of importance on westbound tonnage. The C. & O.'s present connections with the field have grades which are not economical.

The authorized capital stock of the new road, to be known as the Nicholas, Fayette & Greenbrier R.R., will be \$8,000,000, in shares of \$100 par value. Only 4,000 shares will be issued for the present. The two proprietary companies contemplate promissory notes as the means of meeting the remainder of the cost of construction.

The plan will be submitted for approval to the Interstate Commerce Commission after the stockholders of the two companies authorize it, which is expected by Jan. 26.

EDITOR'S NOTE—The foregoing Washington letter reflects certain views of official Washington. Due to the fact that policy as a rule prevents government officials from permitting their views being quoted directly, the authority for these reports is necessarily somewhat vaguely referred to. The views reflected are not those of any one group of officials, but of different men, in the legislative and executive departments. There is no necessary connection between their views and COAL AGE editorial policy; neither do they necessarily represent Mr. Wooton's personal views. It is felt that the opinions thus faithfully reflected will be of great interest to the industry. Where opinions are cited from sources outside of the government, the source will be specifically stated.



Coaling a River Steamer in China

Keystone View Co.

Not far from Tientsin it is a common occurrence to see patient coolies carrying baskets of coal suspended from poles to supply fuel for river traffic. An apparently endless procession files to and from the shore before the fuel requirements of the craft have been satisfied.

30-Hour Week Still the Goal Of Miners, Says Fagan

A five-day week, six-hour day and renewal of the present scale of wages or a higher one, according to P. T. Fagan, president of district 5, will be the chief demands that will be framed by the United Mine Workers at the meeting to be held in Indianapolis Jan. 25. As announced in *Coal Age* recently, the meeting was called by John L. Lewis, president of the international union, for the purpose of formulating the mine workers' demands when they meet with the operators in February to draw up a new agreement.

"We have made a demand for the five-day week and the six-hour day since 1918," said Mr. Fagan. "We may get nearer to it this time."

"When a man digs coal for seven or eight hours a day he is ready to lie down; he has burned up all his energy. A six-hour day will make him more efficient and I believe it can be done without adding to the cost of coal."

"As for the future of the coal business in the Pittsburgh district, that depends on what the Interstate Commerce Commission does regarding freight rates. If rates are reduced, it will help. It is not fair to charge \$1.66 a ton to haul coal to the Lakes and bring back ore for \$1.10 a ton, but that is what is being done."

"Conditions have improved during the last six months, because early in the year only 14,000 union miners were working in the Pittsburgh field, as against 25,000 now. Coal will only be mined successfully in this district in accordance with union operations."

The joint meeting of miners' and operators' representatives, according to present plans, is to be held at Miami, Fla., but Mr. Fagan says it will be transferred to Cleveland or New York.

He said he felt certain that the miners would not consider any reduction in wages at this time. He believed that a reduction was not warranted and that there was more likelihood of an increase being asked for.

Illinois operators have no intention of going to Miami, Fla., next February to meet the policy committee of the United Mine Workers in a discussion over the new wage contract for the Central Competitive Field. This has been authoritatively learned. If a meeting is held at all it will be elsewhere than at Miami. It is understood that John L. Lewis, president of the union, has no serious objections to staging the wage conference in some other city.

As the conference looms near it is intimated that there is a possibility that Ohio will not participate in the meeting. Ohio may do as Pennsylvania did several years ago—refuse to negotiate with the union—pinning its hope on success in an open-shop move.

It is unlikely that Pennsylvania will join the group in February. This would leave Indiana and Illinois as the only operators' groups left in the Central Competitive Field. Indiana follows the East more than it does Illinois.

What will happen is anybody's guess, but it can be said that trouble is ahead in the coming conference. Much depends on what the convention of the United Mine Workers at Indianapolis, Ind., Jan. 25 brings out. Demands for an increase or a shorter week will definitely split the four-state operators. This is what is generally expected in Chicago coal circles.

It is believed that the convention will dump the entire responsibility of the union in negotiating the new wage contract on the executive board, of which Mr. Lewis is the head and the dominating influence. Mr. Lewis will pursue his policy of "No Backward Step." It means a suspension of mining in the union fields in the spring, for the Central Competitive Field almost to a unit is solidly opposed to perpetuating the present Jacksonville scale.

The operators say that the coal industry is different from other industries in that profits do not justify the production costs.

Woods' Coal Affiliations Seen as Smoke Screen To Backing by Railroads

Washington, D. C., Jan. 3.—Representatives of coal producers in Southern States are expected to appear before the Interstate Commerce Committee of the Senate Jan. 6, when the nomination of Cyrus E. Woods for membership on the Interstate Commerce Commission will be considered. As this is written no decision has been reached as to those who would appear before the committee.

Producers of coal in Pennsylvania and Ohio are in no sense backing Mr. Woods for the place; it is said in fact that they seem very much put out that Commissioner Cox should have been removed from the Commission. They were confident that Mr. Cox had been convinced at the last hearings of the merit of their contentions in the Lake Cargo case.

There is a feeling among some coal interests that Mr. Woods' former connection with the Pittsburgh Coal Co. is being used as a smoke screen to hide the fact that he really is being backed by the steel and railroad interests. In this connection it is pointed out that Mr. Woods' association with the Boileau case in 1911 was not active as one of counsel which included Louis D. Brandeis. Mr. Woods did file a paper in that case on May 24, 1911. He was general counsel for the Pittsburgh Coal Co. from May 15, 1907, to Feb. 2, 1912. Prior to his connection with the Pittsburgh Coal Co. he was one of the firm of Gaither & Woods, at Greensburg, Pa. This firm, it is pointed out, represented the Pennsylvania R.R.

During his residence in Greensburg Mr. Woods was president of the State Senate. It is contended that the railroad interests were active in his behalf at times. It is very apparent that the confirmation of Mr. Woods is not desired by the coal industry in either the North or South.

Some Senators opposed to the confirmation of Abram F. Myers as Federal Trade Commissioner and Cyrus E. Woods as a member of the Interstate Commerce Commission are less sanguine of success. It was admitted in Washington on Monday. Despite the apparent opposition to both men some of the Senators actively behind it feel that the lure of patronage will avert defeat of the President's nominations.

Mr. Coolidge, it is believed, is waiting until these and other nominations are confirmed before he decides to fill the minority vacancies on the Federal Trade Commission and the Tariff Commission. The Democratic post on the Federal Trade Board caused by the failure of President Coolidge to reappoint Houston Thompson has existed since early last summer.

The Chesapeake & Ohio Railway Co. has applied to the Interstate Commerce Commission for authority to renew its lease of the properties of the Island Creek Railway Co. between Holden and Logan, W. Va. The Chesapeake & Ohio has had this line under lease since 1912.

Pocahontas Wages Reduced; Other Fields Fear Cuts

A 10 per cent wage reduction for open-shop miners in the territory of the Pocahontas Coal Operators' Association went into effect Jan. 1. The action completed recessions in virtually all the southern West Virginia fields from higher scales paid when the coal market was at its peak a few months ago.

The Pocahontas association was the only one in the southern fields to act on wage scales as an organization, but individual operators throughout those fields in the last two months put into effect scales lower than those in force on Nov. 1. The new pay basis in the Pocahontas territory puts it practically on a par with the so-called "1917 scale," which is about one-third lower than the rate paid miners in union fields.

Reductions in other parts of southern West Virginia have varied, some of them bringing the present pay to approximately the 1917 rate, while others, despite the reductions, are somewhat above that scale.

A number of open-shop operators in the northern West Virginia field also have reduced wages to a basis approximating the 1917 scale, though at some the higher pay rate still prevails.

Apprehension of wage cuts is beginning to seize the coal miners of southwest Virginia, following the recent announcements of reductions in West Virginia fields, according to advices from Norton, in southwest Virginia.

As the Virginia fields are competitive with those of West Virginia, some readjustments may be found necessary, it is believed. All the recent wage increases in both Virginia and West Virginia were coupled with the warning that if the market sagged wages would drop accordingly.

Winding Gulf Field Makes Cut

The Winding Gulf Operators' Association have reduced wages to the level existing before Nov. 1, according to an announcement made following the annual meeting of the members in Beckley on Dec. 30. The new scale is on the basis of the 1917 rate and became effective on Jan. 1. It has been stated by operators that the reduction was decided upon with reluctance, but a somewhat demoralized market and attendant lower price which came as an aftermath of the settlement of the British coal strike made such action necessary. In posting notices of the reduction, operators stressed the fact that producers were confronted either with the alternative of adjusting wages or closing down the mines.

The fact that the advance might not be more than temporary was pointed out at the time wages were voluntarily advanced, effective Nov. 1. It was stated then that it would be possible to continue the high scale only so long as the heavy demand brought about by the British strike lasted. Miners of the Gulf region have really been surprised that the cut was not sooner announced.

All the old officers were re-elected. They are as follows: P. M. Snyder, president; W. Gaston Caperton, vice-



Gifford Pinchot

In a résumé of his administration the Governor of Pennsylvania makes some interesting comments on his relations with the coal industry.

president; Alex Laing, treasurer; C. H. Mead, secretary. The entire membership, with but two exceptions, was represented at the annual meeting.

Industrial Coal Stocks Expand Slightly

Despite the seasonal slowing up of productive activity in some lines of business, industry at large consumed more coal in November than in the previous month, according to the monthly report of the National Association of Purchasing Agents. The total, 42,324,000 tons, shows an increase over the preceding month's tonnage that may partially be accounted for by increasing heat and light loads at power plants. The average daily consumption was 1,410,800 tons.

Coal stocks have been further built up in many industries, the survey of the association showing a total on hand of 49,373,000 tons as of Dec. 1. There is an average of 35 days' supply on hand in all industries.

Many coal operators have wondered at the reluctance of the great majority of industrial plants to start stocking at this time. "The present mining cost, based on recent wage increases, is abnormal," the purchasing agents' association report says, "and until this condition is remedied it looks as if the bulk of the business would go to companies who have reached wage-revision agreements with their miners. Few buyers can be found who will accept contracts based on the artificial rates resulting from the brief scramble in the market during the latter part of October."

Comparative Estimates of Output, Consumption and Stocks

(In Thousands of Tons)

	Output	Industrial Consumption	On Hand in Industries
July.....	51,901	36,514	36,998
August.....	54,577	37,152	38,641
September.....	57,424	37,512	40,682
October.....	63,267	41,115	44,271
November.....	68,650	* 42,324	45,535
Dec. 1.....			49,373

* Subject to revision.

Urges Legislation to Lift Obstacles to Rail Mergers

Prompt enactment of legislation to remove the obstacles which for nearly seven years have blocked the path of railroad consolidation is urged in a communication sent to the Senate Interstate Commerce Committee Dec. 30 by John W. O'Leary, president of the Chamber of Commerce of the United States.

"It is generally accepted," says Mr. O'Leary, speaking for a majority of the 1,400 business organizations embraced in the National Chamber's membership, "that some degree of consolidation is desirable. Serious obstacles which have been encountered under the present law are outlined in the attached statement."

"The National Chamber believes that it is practicable to remove these obstacles by legislation and feels that this is one of the most important matters before Congress. The Chamber is in favor of the major provisions of the Parker-Fess Bill. I earnestly hope that the Committee on Interstate Commerce will take action to secure the passage of this legislation during the present session."

The obstacles enumerated are:

"(1) The Transportation Act directs the Interstate Commerce Commission to prepare a comprehensive plan for railroad consolidation; but thus far the Commission has found it impracticable to prepare such a plan.

"(2) Under the act consolidation by the formation of a new corporation is subject to certain conditions that are different from those applicable to other forms of railroad unification.

"(3) The Commission has no express authority to disapprove any proposed consolidation on the ground that it does not include a particular carrier which ought to be included in the public interest.

"(4) There is no adequate provision for federal machinery needed to effect a consolidation approved by the Commission.

"(5) The Transportation Act makes no adequate provision for adjusting the claims of dissenting minority stockholders.

"(6) The act limits the capitalization of any consolidated company to the aggregate value of the properties consolidated, as determined by governmental authority; but this value has not yet been determined for many of the railroads of the country.

"(7) The federal and state taxes now levied on the processes of consolidation constitute an obstacle to railroad consolidation."

Provision for obviating these difficulties, it is pointed out, is made in the Parker-Fess Bill. The National Chamber goes further and declares for federal incorporation of the consolidated companies. It declares, however, that "consolidation should not wait upon the enactment of federal incorporation legislation either compulsory or permissive, and that, in the absence of federal legislation, the states themselves might lead the way by enacting liberal and uniform laws removing the difficulties and costs of consolidating the existing railroad companies."

Pinchot Says Anthracite Operators Are Still Hard-Boiled Monopolists; Lauds Walsh, Secretary of Mines

Gifford Pinchot, Governor of Pennsylvania, took a parting shot at politicians in the Keystone State, with a sally for the anthracite operators, in a message to the Legislature on Jan. 4. Considerable space is devoted to his relations with the coal industry during his administration. This is his final message, as his term expires Jan. 18.

The Governor's message is in reality a report on his four years as executive, the bulky résumé of the administration being prefaced by a 17,000-word introduction in which Mr. Pinchot characteristically condemns the professional politicians and machine bosses. The departments are taken up separately and



Seward E. Button
Formerly Chief of Mines in Pennsylvania

discussed in the preface, which, in addition to being devoted to departmental matters, discusses also giant power, prohibition, election reform and administrative changes in the state government.

Under the heading "Department of Mines," the Governor tells why he dismissed the former Chief of Mines and why he selected Joseph J. Walsh as Secretary of Mines, the chief's title being changed by the administrative code. Mr. Walsh, he said, is the best equipped man in the state to head the department.

Further on in the report the Governor dwells on the two anthracite strikes occurring during his four-year term and of the part he played in bringing about a settlement and drafting terms of agreement. The operators are still "hard-boiled monopolists," the Governor said.

In dealing with department matters the Governor said:

"When this administration came in, the mine inspection service was headed by a politician wholly unfit to be charged with the safety of hundreds of thousands of men. I removed him promptly and put in his place the present Secretary of Mines, who was

universally recognized as the best equipped man in Pennsylvania for this important and responsible work. I did so without inquiring and without knowing his politics. He was the best man to protect the lives of the miners, and that was enough.

"During the present administration the Department of Mines has not only carried forward its regular work upon a high standard of efficiency but has reduced the number of accidents in mines. In 1922 the fatal accidents per million man-days were 14.07. In 1925 they were 11.35. That means 171 less deaths from accidents in proportion.

"The department has introduced the rock-dusting safety method in bituminous coal mines with important results in the prevention of explosions and the saving of human life; and has taken part in the settlement of two strikes in the anthracite region.

"A mining course, prepared by the Department of Mines, the Department of Public Instruction and State College for use in vocational schools throughout the coal regions is the most complete course of its kind ever prepared by any state government.

State Has 2,450 Mines

"In Pennsylvania there are 1,700 bituminous mines and about 750 anthracite mines. The state has a force of fifty-five qualified inspectors who have charge of the supervision of these mines for the protection of the miners. During this administration the inspectors have made more than 33,000 inspections of mines and investigations of accidents.

"The inspectors are selected by examination through a Mine Inspectors' Examining Board for the anthracite and another for the bituminous coal fields. The methods employed in both have recently been found to be unsatisfactory. They need to be completely revised."

The message said relative to the two anthracite coal strikes:

"In the fall of 1923 the entire northeastern section of Pennsylvania was threatened with industrial stagnation by a strike in the anthracite field. At the same time, since four-fifths of the anthracite mined is burned outside of Pennsylvania, the great body of anthracite users, some 40,000,000 people in the United States, were in imminent danger of having to go without their customary fuel.

"After efforts by members of the national administration had failed to effect settlement of the anthracite coal strike of that year, I deemed it my duty as the Governor of Pennsylvania to use my best efforts to secure coal for consumers. Accordingly, after prolonged negotiations at Harrisburg, in which none but Pennsylvanians took any part, the strike was settled on Sept. 19, 1923, and a supply of anthracite for the coming winter was assured.

"Immediately thereafter the operators took advantage of the terms of the



Joseph J. Walsh
Pennsylvania's Secretary of Mines

settlement to exact for themselves an increased profit at the cost of an increased price to the consumer. I protested, called the Governors of the anthracite-using states into conference, and secured the introduction of a bill in Congress, but the operators held to the higher price.

"The second anthracite strike during this administration began on Sept. 1, 1925. After it became evident that the national government intended to take no action toward settling the strike, I called a meeting in Harrisburg of miners and operators (which the operators refused to attend) and there submitted terms which were substantially the same as those upon which the strike was settled a few months later.

"This strike confirmed my opinion of the anthracite operators as hard-boiled monopolists, whose sole interest in the people is what can be got out of them. My relations with the miners have given me confidence in their integrity and public spirit, which was well illustrated when during the last strike they accepted my proposal to forego any increase in wages which could not be granted without entailing an increase in price to the consumer."

While there has been considerable talk about the possibility of dividing the responsibilities of the Secretary of Mines by creating an anthracite and a bituminous bureau in the Department of Mines, each headed by an expert, nothing is yet definitely known regarding the attitude of the next administration. The first message of John S. Fisher, the successor to Governor Pinchot, will be his inaugural address.

Anthracite Circular Prices for January at New York

(Per Gross Ton, F.o.b. Mines)

	Broken	Egg	Stove	Nut	Pea
Lehigh & Wilkes-Barre Coal Co.	\$8.25	\$8.75	\$9.25	\$8.75	\$6.50
D.L. & W. Coal Co.	8.25	8.75	9.25	8.75	6.50
Hudson Coal Co.	9.00	9.00	9.35	9.00	6.00
M. A. Hanna Co.	9.00	9.25	9.60	9.25	6.50
Phila. & Reading Coal & Iron Co.	9.15	9.15	9.40	9.15	6.50
Lehigh Coal & Navigation Co.	9.25	9.25	9.50	9.10	6.35
Lehigh Valley Coal Sales Co.	8.50	9.00	9.35	9.00	6.50
Buckwheat No. 1,	\$2.75	\$3.00	\$3.25	\$2.75	\$2.25
rice,	\$2.00	\$2.25	\$2.50	\$2.00	\$1.75
barley,	\$1.50	\$1.75	\$2.00	\$1.50	\$1.25
birdseye,	\$2.00	\$2.25	\$2.50	\$2.00	\$1.75

Report Clears Retailers Of Profiteering

Profits of retail coal dealers in Washington were not excessive during the anthracite strike, it is shown by a report made to the District of Columbia Committee of the Senate by the Comptroller General of the United States. Joseph O'Toole, secretary of the National Retail Coal Merchants Association, after analyzing the report, expressed the opinion that the retail dealers have been cleared of the charges of profiteering which were launched against them.

Mr. O'Toole made some minor criticism of the report based on the arbitrary allotment of overhead cost to the different varieties of fuel. In the case of briquets the rate of profit is shown in one instance to have been \$3.07 per ton. This is not a true picture of that situation, Mr. O'Toole contends, but there is no disposition on the part of Washington retailers to quibble over the minor points of the report, since the report as a whole indicates that they are receiving a smaller percentage of profit than practically any other line of retail business.

Eastman Opposes Curtailing Powers of I.C.C.

Curtailment of the powers of the Interstate Commerce Commission through the division of such authority among public bodies in the forty-eight states is inadvisable, according to Joseph Eastman, who has just been succeeded by John J. Esch as chairman of the Commission. This opinion was expressed in a letter to Representative Hoch, of Kansas.

Mr. Hoch, who is a member of the House Interstate Commerce Committee, had asked Chairman Eastman for his views on proposals that have been made for the decentralization of the work of the Commission by the establishment of regional boards, and what in his opinion would be the effect of restoring to state commissions the power that they lost through decisions in rate cases by the U. S. Supreme Court.

Commissioner Eastman stated that he was opposed to both proposals. He stated that decentralization would not lighten the burdens of the Commission, and that state commissions should be strictly limited to supervision of railroads within state boundaries.

"In my judgment," wrote Mr. Eastman, "the answer to the problem which we have in mind will be found (1) in proper co-operation between this Commission and the various state commissions, and (2) in the proper organization and financing of this Commission."

Mr. Eastman, who had four years' experience on the Railroad Commission of Massachusetts before going to Washington, expressed the opinion that it would be a mistake to give state commissions power over freight rates that they do not now possess.

"There is everywhere a widespread competition between persons and localities engaged in interstate commerce, and which is indicated in intrastate commerce," he said. "No artificial bar-

Legislative Power Over Federal Courts

By WILLIAM GREEN

President, American Federation of Labor

The U. S. Supreme Court's recent ruling upon the right of the President to remove appointed persons from office does much to fix upon the President responsibility for his administration. Quite incidental to the discussion of the main issue the majority decision of the court makes a statement of paramount importance to labor:

"It is clear that the mere establishment of a federal inferior court does not vest that court with all the judicial power of the United States as conferred in the second section of Art. III, but only that conferred by Congress specifically on the particular court. It must be limited territorially and in the classes of cases to be heard, and the mere creation of the courts does not confer jurisdiction except as it is conferred in

the law of its creation or its amendments."

This is the principle upon which labor bases its proposal to define the equity jurisdiction of federal courts. Labor proposes that equity courts return to their original purpose—the protection of property against irreparable damages and to meet situations for which law does not make adequate provision. Crimes and other violations of law ought in the opinion of labor to be tried in courts of law. Labor believes that the only way to stop the injunction abuse in labor situations and to prevent equity courts from exceeding their jurisdiction is to define by law their jurisdiction in plain terms. Clearly the Supreme Court holds this procedure constitutional. — *American Federationist*.

riers should be opposed to such competition. But experience has shown that if states are given a wholly free hand in regulating intrastate rates such artificial barriers will exist.

"Manifestly there is need for some central and uniform control such as is provided in the Interstate Commerce act. The reasons are the same as made it necessary in the Constitution to prohibit states from levying any imposts or duties on imports or exports.

"Much has been said about federal bureaucracies and overcentralization of authority, and I agree that a serious danger lies in this direction. Local interest and concentration upon vital public questions is essential to a healthy democratic government.

"On the other hand, there must be some uniform and centralized means of control so far as the questions are of national importance. Otherwise confusion and chaos will result."

Hampton Roads Coal Traffic Smashes Year's Record

Hampton Roads took a firm grip on the title of world's greatest coal port during 1926 by shipping well above 27,000,000 tons. This exceeded by nearly 6,000,000 tons the old record year of 1921, and went 10,000,000 tons above the post-war average year.

It is probable that 1926, from a coal shipper's standpoint, would have been a satisfactory twelvemonth even without the boost the British strike gave the business. Dumpings during the first five months were well above normal, though they appear small alongside the record months of summer and autumn.

The unprecedented foreign demand did not send prices skyward as in 1921, when the British mines were idle a considerable period. American miners and mine owners have made money on account of this year's strike, but the American manufacturer has not had at any time to pay much above \$6 per ton for his fuel at Tidewater. During the peak of the 1921 strike, coal prices at

Hampton Roads went above \$12 a ton.

The extra coal business has caused earnings of the Virginian, Norfolk & Western and Chesapeake & Ohio railroads to rise to the highest mark in history.

All coal dumping records were smashed during 1926. Never in their long history previous to last summer had the Hampton Roads piers dumped more than 2,300,000 tons of coal in a month. During the last half of 1926 they beat this figure every month, and in October, the peak month, they shot 3,047,333 tons through their chutes.

Heaviest Traffic in History Handled by Roads in 1926

Railroads of the United States loaded 53,260,000 cars of revenue freight in 1926, according to the American Railway Association. This estimate is based on actual loadings for the first fifty weeks with a calculation for the remaining two weeks. A gain of 4 per cent over last year, which held the previous record, is indicated. Except in isolated instances there were practically no transportation tie-ups, congestion or car shortages.

In twenty-seven weeks of 1926 loadings exceeded one million cars, the largest number of such weeks ever reported and an increase of seven over the record in 1925. The highest figure for any one week was reached in the period ending Oct. 30, when the total was 1,216,432 cars.

One of the outstanding reasons for the efficient service of the roads was the large expenditures for capital improvements made in recent years.

Capital expenditures in 1926 for equipment, which includes locomotives and cars, amounted to approximately \$380,000,000, compared with \$338,000,000 in 1925. Capital expenditures for roadway and structures, additional track, heavier rails, additional ballast, shops and engine houses, including machinery and tools, amounted to \$495,000,000 compared with \$410,000,000 the preceding year.

Traffic Outlook Favorable, Says Aishton

R. H. Aishton, president of the American Railway Association, in commenting last week on improvement in service by the railroads, said: "The movement of freight, despite the usual decline in traffic in the late fall and early winter, continued to forge ahead of the corresponding periods in previous years, and unless the unforeseen should take place there is little doubt that freight traffic in the first few months in 1927 will continue to be greater than in the past for that season of the year. What the remainder of 1927 will show, however, is difficult just at this time to forecast because of the unknown variation in crop conditions, changes in the foreign industrial situation and other economic uncertainties of the future."

"The ability of the carriers in 1926 to furnish adequate transportation was largely made possible by the functioning of the transportation machine, to which have been added within the past five years new and improved appliances, tools and additional plant facilities to the value of more than five billion dollars. Because of this fact the carriers have been able to bring about economies and efficiencies in operation which otherwise would not have been possible and which in turn have materially benefited the public."

"An outstanding development of the past year is the wonderful co-operation received from shippers, both individually and collectively, through their organizations and through the various shippers' regional advisory boards that have now been set up in all parts of the United States."

Sioux City Case Decided

In Traffic Bureau of Sioux City Chamber of Commerce vs. Baltimore & Ohio R.R., I.C.C. Docket 14533, the Interstate Commerce Commission found the rates on anthracite and bituminous coal from Lake Superior docks and from various Illinois groups to Sioux City, Iowa, to have been unreasonable prior to establishment of subsequent rates prescribed in 89, ICC 170 (Lake Dock Coal Cases). The report is long and goes into the history of the rates in question, but is confined primarily to the question of reparation.

The Commission found that the rates assailed during the reparation period were unreasonable to the extent that they exceeded the following amounts per net ton: From the Lake Superior docks \$3.92 and \$3.72 on anthracite and bituminous coal, respectively, prior to July 1, 1922, and on and after that date \$3.53 and \$3.35 on those respective kinds of coal; and on lump coal \$3.83 from northern Illinois and Fulton-Peoria groups, \$4.28 from the Springfield group, \$4.50 from the Belleville and Centralia groups, and \$4.61 from the southern Illinois district and Duquoin group prior to July 1, 1922, and on and after that date \$3.45, \$3.85, \$4.05, and \$4.15 from those respective groups or districts.

Reparation awarded accordingly.

Coal Mines to Share Tax Refund

Considerable importance to coal interests is attached to the proposal made by Andrew Mellon, Secretary of the Treasury, that Congress grant authority to refund \$174,120,177 to taxpayers. Among those affected and the amounts involved are the following:

C. Reiss Coal Co., Sheboygan, Wis., \$107,731; New River & Pocahontas Consolidated Coal Co., Philadelphia, \$133,307; Temple Anthracite Coal Co., Scranton, Pa., \$291,007; Roy A. Rainey, New York City, \$134,421.

New 53-Mile Line Sought

Amended application has been filed in Finance Docket 5161 by the Guyan dot & Tug River Railroad Co. for a certificate of public convenience and necessity to construct a new line of railway. Applicant is a subsidiary of the Norfolk & Western. The line will extend from a connection with the Virginian Ry. at or near Elmore, W. Va., down the Guyandot River by water grade to Gilbert, Mingo County, W. Va., and thence by way of Gilbert Creek and Ben Creek to Wharncly, on the main line of the N. & W. in Mingo County—a distance of 53 miles.

Whiteley & Foedisch Dissolve

Announcement has been made that effective Dec. 31, 1926, by mutual consent, the firm of Whiteley & Foedisch, with offices in New York and Philadelphia, has been dissolved. The old firm consisted of John W. Whiteley and George C. Foedisch.

The New York business of the concern will be taken over by Whiteley & Buckalew, Inc., composed of Mr. Whiteley and F. W. Buckalew, who has been associated with Mr. Whiteley in the New York office. At the same time the Philadelphia business of the old firm will be continued under the name of George C. Foedisch & Co. Carroll B. Nichols, Richard Darlington and Thomas J. McDonald are the other members of the company.

Foss Succeeds Caldwell

Edward Caldwell has resigned from the presidency of the McGraw-Hill Book Company, Inc., 370 Seventh Avenue, New York City, and will retire from active business. Mr. Caldwell has been associated with the McGraw-Hill interests for thirty-six years. He was one of the organizers of the McGraw-Hill Book Company, Inc., in 1909, and has been active in its management since its formation. Mr. Caldwell will remain on the boards of directors of the McGraw-Hill Book Company, Inc. and the McGraw-Hill Publishing Company, Inc. Martin M. Foss, who was associated with Mr. Caldwell in the organization of the McGraw-Hill Book Company, Inc., will succeed Mr. Caldwell as president.

N. & W. Coal Traffic Heavy During Past Year

Norfolk & Western Ry. coal loadings in the week ending Dec. 25 totaled 11,429 cars, it was announced at the office of the company at Roanoke. Tidewater dumpings at Lamberts Point were 4,756 cars, or 282,035 tons. Revenue freight cars loaded on the line reached 16,136, while those received from connecting lines totaled 6,963, making a grand total of 23,099 cars.

The production of coal, which constitutes the bulk of the traffic of the Norfolk & Western, increased 14.3 per cent during the first eleven months of 1926, as compared with 1925, according to A. C. Needles, president of the company. During the same period the N. & W. dumped over its Lamberts Point piers at Norfolk almost 52 per cent more coal than it did in 1925 and, based on the latest figures available, the year will bring the best coal-handling record since the Norfolk coal piers were placed in operation. Estimated dumpings for the year will be approximately 10,752,537 tons, or nearly 2,000,000 tons more than during 1920, the previous record year.

Rules on Rates to Topeka

In a report in Docket 17385, Albert Silk Coal Co. vs. Santa Fe, the Interstate Commerce Commission found rates on lump and slack bituminous coal from mines in Arkansas and Oklahoma and from Spadra, Ark., to Lawrence, Kan., were, are and will be unreasonable to the extent they exceed \$2.80 per ton on lump and \$2.40 on slack from Arkansas-Oklahoma group and \$3.05 on lump and \$2.40 on slack, from the Spadra group. The rates to Topeka also were under attack, but the slack coal rates were found not to be unreasonable. The rates on lump coal to Topeka were found unreasonable to the extent they exceed \$2.95 from the Arkansas-Oklahoma group and \$3.20 from the Spadra group. Commissioner Aitchison dissented.

"Soo" Coal Traffic Heavier

Shipments of coal westbound through the canals at Sault Ste. Marie during December consisted of 266,394 net tons of bituminous and 17,000 tons of anthracite. Total shipments for the season of 1926 were 12,955,388 net tons of bituminous coal and 1,483,713 tons of anthracite, which compare with 11,974,347 and 899,989 tons, respectively, in the season of 1925.

In a decision by Justice Holmes, the U. S. Supreme Court held Jan. 3 that the Emmons Coal Mining Co. and its surety, the Fidelity & Casualty Co., are responsible for the payment of demurrage to the Norfolk & Western Railway Co. for cars held at Lamberts Point, Va. The coal company and its surety had declared that the Lamberts Point Coal Exchange, an organization formed to sort cars of coal intended for export according to the quality of coal, was responsible for the demurrage when cars were delayed. The decision affirms that of the lower courts.



News Items From Field and Trade



ALABAMA

Mines Producing Heavily.—Coal mining in Alabama made a new record for output in the week ending Dec. 11, when 452,000 tons of coal was moved. With an expected output for the week ending Dec. 25 of around 300,000 tons and about the same for the last week of the year, production in Alabama will go above 20,000,000 tons for the year.

Start Work on 49 New Ovens.—The Koppers Company is now preparing the foundation for the forty-nine new ovens to be added to the plant of the Alabama By-Product Corporation at Tarrant City, the contract for which was awarded some time ago.

New Slope Near Premier Mine.—The Premier Coal Co. is opening up a new slope at Mossboro, Shelby County, near the Premier mine, an old operation. The output will be handled over the Premier mine tipples. The offices of the company are located at Helena.

New Washery and Tipple Begun.—The Alabama By-Product Corporation has begun work on the construction of a washery and tipple at Praco, Flat Creek Division, to handle the output from the two new slopes at that place.

COLORADO

Advanced First Aid.—Starting early this month, advanced first-aid training is to be given to the officials of the coal companies in and around Trinidad. This training is given to all of the officials from the general superintendent to the firebosses, and might be termed "What to do in case of disaster," including both mine rescue and first-aid and also preventive measures.

ILLINOIS

Subdistrict Officers Re-elected.—According to unofficial reports, in the recent election in the Belleville subdistrict of the United Mine Workers returns received at the headquarters in Belleville indicate the following officers have been re-elected: President, Dan Thomas; vice-president, William Jacks, and secretary-treasurer, James Mason. The subdistrict includes all the mines in St. Clair County, five local unions in Madison County, one in Washington County, one in Bond County and five in Clinton County.

The eighth subdistrict convention of the United Mine Workers, which began Jan. 5 in Sparta, will last four days.

The subdistrict comprises Randolph, Perry and Jackson counties and a part of Marion County. In the district there are thirty-eight mines employing 8,000 men. About seventy delegates are in attendance.

INDIANA

A complaint to foreclose a lien and for the appointment of a receiver for the Square Deal Coal Co., operating a mine north of Boonville was filed in the Warrick County Circuit Court at Boonville against the company and Zachariah Turpin by Philip E. Smith. Gus Gardner, Joseph T. Smith and James Broshears, said to hold liens on the property subsequent to the lien of the plaintiff, were made co-defendants to the action.

Kings Mine Rock-Dusted.—The Kings mine of the Deep Vein Coal Co., three miles south of Princeton, has completed the spraying of the entire mine with rock dust. The mine employs 140 men.

The Enos Coal Co., of Pike County, gave a Christmas turkey to each of its 350 miners.

IOWA

That Iowa coal operators have seen the futility of their fight to reduce the wages paid to the miners and many have indicated that they will sign for a continuation of the present agreement when it expires next spring, is part of a statement issued at Des Moines by Joe Morrison, president of district 13, United Mine Workers. "Unfair decisions" by the Interstate Commerce Commission and injunctions granted by "unfair judges" were blamed by Morrison, in the statement, "for most of the depression that has existed in the industry in the central states and Iowa." He asserted that "bitter experience has taught the miners that wage reductions only tend to demoralize and never to stimulate business."

KANSAS

Output Best in Six Years.—Coal production in Kansas exceeded 5,000,000 tons last year for the first time in six years, according to James Sherwood, state mine inspector. The 1926 production will exceed by 250,000 to 500,000 tons that of 1925, when the output was 4,813,088 tons. The low ebb came in 1922, when the output was 3,518,243 tons. The last year in which more than 5,000,000 tons was produced was

1919. The increase this year, Mr. Sherwood said, is accounted for largely by the many additional steam-shovels at strip-mining operations, which began in 1926. Working time at the deep mines was much steadier last year, although the number of shafts in operation was less than in 1925.

Candidates Seek Hearing.—Resolutions passed by local unions at Cherokee and Arma have been filed with the Secretary of District 14 of the United Mine Workers requesting that a special convention be called to hear grievances of members whose names were withheld from the ballots at the recent election.

Modern Tipples Completed.—The Crowe Coal Co., Kansas City, recently completed two modern tipples for mines Nos. 24 and 25, which are strip-mining operations. The claim is made that they are the most complete and efficient in preparation facilities that are to be found in the Kansas field.

KENTUCKY

Phoenix Mine Flooded.—It was reported from western Kentucky Dec. 29, that seven men employed in the Phoenix Coal Mining Co. plant at Nonell, near Drakesboro, narrowly escaped from the mine before a rush of waters filled the shaft to a height of 35 ft. A pump with a capacity of 300 gallons a minute was under water. The men were making provision against water when they heard the break. Some months ago the mine was flooded for a few days, when the old flooded Elk Valley mine, adjoining, broke in. The Elk Valley mine was flooded some years ago, and could never be operated again. A lot of money was spent in trying to pump out the Elk Valley, but without effect. It has been reported that Nashville interests, which owned the Phoenix mine, including Justin Potter, of the Nashville Coal Co., recently sold the plant to Birmingham interests, but details of the sale could not be obtained.

The Louisville & Nashville R.R. has been building a short extension up Kings Creek from Roxana, and it is predicted the line will go to Line Fork eventually.

A joint suit seeking the appointment of a receiver for the Golden Rule Coal Co., Covington, was filed Dec. 28 in the federal court, Covington, by the Tildesley Coal Co. of Cincinnati, the First National Bank of Covington and the Hathway Stamp Co., of Cincinnati. The complainants assert that the com-

pany is insolvent and applied the following morning to Judge Cochran, Maysville, for a receiver to conduct its affairs. The claims of the complainants are as follows: Tildesley Coal Co., \$17,082.30; First National Bank, \$5,000, and the Hathway Stamp Co., \$1.65.

MASSACHUSETTS

Stocks of domestic anthracite in the yards of Massachusetts dealers on Dec. 1 were 885,886 net tons, compared with 207,504 tons on the corresponding date a year ago. Deliveries to consumers from April 1 to Nov. 30 totaled 3,635,584 tons, an increase of 136,595 tons over the figure for the same period of last year.

MISSOURI

Sixty men are employed in the installation of the mining machinery of the Howard County Coal Mining Co. at Russell. It is expected that by Feb. 15 the miners will be loading coal from the new mine. It is the largest strip mine in the state and the entire output will be taken by the Kansas City Power & Light Co.

NEW YORK

Merger Excites Buffalo.—Consolidation of the coal and coke interests of E. L. Hedstrom and Spaulding & Spaulding was announced in Buffalo Dec. 22. This move has created a sensation in the local trade, being the largest of its kind that anyone remembers. There are still to be two companies: Hedstrom-Spaulding, Inc., will sell anthracite locally; Spaulding, Hedstrom & Spaulding will sell soft coal and coke. The capital stock has not been arranged and a good many other details are wanting, but the change will be made on Jan. 1.

The Gibby Coal Co., Inc., began operations in New York City on Jan. 1, with offices at No. 1 Broadway. W. P. Gibby is the president of the new concern. Mr. Gibby is well known to the trade, having been at times connected with the Lehigh Valley Coal Sales Co., Clarence B. Sturges and for the past few years with the Sellar Coal Co. The company will deal in both anthracite and bituminous coals.

OHIO

Ebersbach Heirs Sued.—Suit to collect \$1,801,059 from the Martin Ebersbach Coal Co., the Peacock Coal Co. and eight members of the Ebersbach family, of Pomeroy, has been filed in the Court of Common Pleas at Columbus by the Pittsburgh Coal Co. The amount is claimed due in connection with a 6,000-acre coal deal in Meigs County. The plaintiff, which is a merger of the Pittsburgh Coal Co. and the Great Lakes Coal Mining Co., claims to have purchased the property from the Ebersbach family six years ago and that the defendants have failed to give

abstracts and deeds for much of the property and now asks the return of what has been paid on the purchase price. In the meantime Martin Ebersbach died and the heirs are made defendants. The deal was made by the Great Lakes Coal Mining Co., which since has been absorbed by the parent company, the Pittsburgh Coal Co.

The Norfolk & Western Ry. is constructing a battery of forty coal chutes for a new coal pocket to be erected on its lines in Norwood, a suburb of Cincinnati. These are to replace a smaller pocket which the company has maintained on the Cincinnati, Lebanon & Northern in the heart of the city but which has outlived its usefulness.

Predicts 30,000,000 Tons Output.—Basing his estimate on weekly reports

porary financial plan, but at the last session of the Legislature a movement to have it repealed made little progress. The coal operators have made several legal attacks on the tax.

The Cosgrove-Meehan Coal Corporation reports for the eleven months ended Nov. 30, 1926, profit of \$319,650 after interest, depreciation and depletion, against \$125,887 in the corresponding period of the previous year. During the eleven months the company produced 2,317,780 tons of coal compared with 1,731,310 tons in the same period of the previous year.

More than 2,400,000 tons of coal was transported in the Pittsburgh district on the Monongahela, Ohio and Allegheny rivers in November, according to a re-



Coalwood Road from Welch, W. Va., in the Pocahontas Region

One of the good roads in the southern West Virginia coal country. These magnificent roads have been excavated in many cases by steam shovel. Winding along the precipitous sides of the mountains, travel by automobile gives a thrill at times hardly exceeded by that experienced in traversing the mountain roads in the Rockies, though here the wooded slopes give a degree of protection, however uncertain.

received up to Dec. 1, Jerome Watson, Chief Mining Inspector, believes that coal production in Ohio in 1926 will exceed 30,000,000 tons. This is about 3,000,000 tons more than the 1925 total, which was 27,564,760 tons. In 1924 30,096,893 tons were produced. During the last seven years 1920 was the top, with 45,227,077 tons and 1923 was second, with 40,904,275 tons.

The E. P. Wynn Coal Co., of Canton, is reported to have bought the Blue Shaft mines, six miles from New Philadelphia, from the Akron Coal Mining Co. The reported consideration was \$250,000.

PENNSYLVANIA

Another Assault on Hard-Coal Tax?—In the report of the State Tax Commission to be presented to the new session of the Pennsylvania Legislature it is expected that a recommendation will be made to have the tax on anthracite repealed. The same report is expected to advise a boost in the present gasoline tax. The coal tax has been in effect in the state for more than four years. It was first adopted as a tem-

port by the Pittsburgh offices of the United States Engineers. The Monongahela led, with 1,788,989 tons; the Ohio was second, with 508,000, while the Allegheny trailed with 106,557. Shipments of coke on the Monongahela totaled 101,959 tons; Ohio, 66,500 tons; Allegheny, 3,200 tons.

Announcement has been made of the purchase of the washery and other holdings of the Barton Coal Co. by the Scranton Coal Co. for a consideration said to be \$100,000. The Barton company's plant is located near the Ontario Colliery of the Scranton Coal Co. in Archbald.

The mines of the Cascade Coal Co. at Sykesville, an auxiliary of the Rogers-Brown Iron Co., are still idle, the men having struck because a man was employed who was objectionable to them. Notice has been given that if the men do not return to work at once the mine will be closed indefinitely.

The Pennsylvania Coal & Coke Corporation and subsidiaries report November surplus of \$83,084 after ordinary taxes, depreciation and depletion, but before federal taxes, against a

deficit of \$8,420 in November, 1925. Deficit for the first eleven months of 1926 totaled \$148,317 on the above basis, comparing with a deficit of \$461,614 in the same period of the previous year.

TENNESSEE

A number of Wheeling (W. Va.) business men have become interested financially in a newly incorporated iron, ore, timber and coal company, with \$1,000,000 capital stock, which proposes to exploit coal and ore lands in north-

the older companies, supported by powerful interests, cutting prices to a point below cost. Ogden has had a retail price war for several weeks.

WEST VIRGINIA

First Coal Cargo to Ecuador.—The Norwegian steamer *Betty* recently cleared from Newport News with a cargo of coal for Guayaquil, Ecuador, the first coal shipment from this port to that destination. The cargo consisted of 2,093 tons of Kanawha splint coal for the Guayaquil & Quito R.R.,

Charleston), recently organized, has acquired the property of the Beury Coal & Coke Co., at Beury, and is reported to be planning extensions and improvements, including the installation of power and mining machinery.

W. A. Otey, superintendent of the Greenbrier Coal & Coke Co., at McDowell, may lose his right arm as a result of an accident at the mines when the arm was caught in a pump and almost torn from its socket before the machine could be stopped.

The Wheeling Coal Railroad Co., which is planning to open coal fields in the Wheeling District, has purchased a large acreage in the Triadelphia region. The land was obtained from the Board of Education for the construction of a bridge to span Wheeling Creek.



Fern Lake, the Water Supply for Middlesboro, Ky.

This artificial lake, three miles long by a fraction of a mile in width, assures Middlesboro of a ample supply. For reasons such as this Middlesboro is a favorite residential town for officials of Tennessee, Virginia and Kentucky mines.

ern Georgia and Tennessee. The company controls about 30,000 acres on which coal and other minerals have been proved. It is also proposed to build a smelter right where the ore is located in order to cater to the Southern markets where industrial development has been going on steadily for several years past.

The New Blizzard Coal Co., of Oak-hill, is reported to have leased and will develop coal mine properties of the Chattanooga Gas Co., near Harriman.

UTAH

James P. Hill, until some months ago general manager of the Lion Coal Co., of Ogden, has been appointed director of sales for the Iron Fireman Manufacturing Co. of Cleveland, Ohio. Since resigning from the Lion company Mr. Hill had been interested in the distribution of the automatic coal burners made by the Cleveland company. He left Ogden for Portland, Ore., where he will spend ten days in the company foundry and factory before taking up his new duties.

The Ogden Cash Coal Co., of Ogden, has gone out of business after operating for 13 months. In a paid press notice the manager of the company said the discontinuance was caused by

which is owned by the Government of Ecuador. The coal was consigned by the Berwind-White Coal Mining Co.

Cedar Bluff Receiver Named.—Acting upon the petition of Garfield Watkins and others, Judge W. S. Meredith of the Circuit Court of Marion County directed on Dec. 28 that the Cedar Bluff Coal Co., operating a new mine across the West Fork River from White Rock, be placed in the hands of a receiver and appointed Milton Williams to act in that capacity. The bill of complaint points out that the company is not insolvent although indebtedness is in the neighborhood of \$14,000, but that the company lacks ready cash with which to liquidate its indebtedness. The mine will continue to be operated under the receiver. The mine has a capacity of three 70-ton cars daily. The Sewickley vein is being operated. Russell Kuhn is president of the company and Dr. D. L. L. Yost is secretary-treasurer.

Island Creek Dividend \$6.—Island Creek Coal Co. has declared a quarterly dividend of \$6 on common and regular quarterly dividend of \$1.50 on preferred, both payable Jan. 1 to stock of record Dec. 23. Previous dividends this year on common have been \$4 quarterly.

New Firm to Extend.—The Southern Smokeless Coal Co. (W. D. Guyer,

CANADA

Lignite Plant in New Hands?—According to authentic report the lignite-utilization plant of the Saskatchewan Government may soon be taken over and operated by an English-Canadian company. An engineer is expected from England soon, and if his report is satisfactory, the plant may be turned over and operated by the new concern. The actual commercial production of briquetted lignite, if it comes about, will be the result of investigations, experiments, and actual operations which have been conducted at Bienfait, in the Saskatchewan lignite field, since 1918. The utilization of Saskatchewan lignite is one of the various means Canada is adopting to arrive at a partial solution of the problem of supplying the great coalless industrial area of central Canada with domestic fuel at an economic rate. In the first six months of the present year Canada produced 6,895,813 tons of coal, of which Alberta and Nova Scotia each accounted for 39 per cent; British Columbia, 18 per cent; Saskatchewan, 3 per cent; and New Brunswick, 1 per cent. In the same period Canada was forced to import 7,221,924 tons of coal while exporting only 343,272 tons.

Coke Output Declines.—Coke production in Canada during November, 154,462 tons, was 11 per cent less than the output of 173,592 tons for the previous month, but only 1 per cent below the 156,182 tons produced in November last year. The quantity of coal used in November last for coke production was 234,044 tons, of which 79,305 tons were Canadian and 154,739 tons imported. Imports of coke during the month totaled 102,987 tons, and exports were 7,597 tons.

Alberta Rate Probe Deferred.—The Canadian Board of Railway Commissioners has refused all applications from Alberta and Ontario to set an early date for consideration on the freight rates on Alberta coal to the East. Chief Commissioner McKeown announced that the board was unable to find sufficient reason for stopping the general freight-rate investigation now under way which had already been in progress for a year and a half.

Among the Coal Men

William Sloan, Minister of Mines and Provincial Secretary for British Columbia, who was in a hospital in Vancouver for several weeks, left Victoria recently on the motor ship *Aorangi* for Honolulu, to recuperate his health.

James Dickson has been appointed chief inspector of mines for British Columbia, in the place of George Wilkinson, deceased. Since Mr. Wilkinson's death Mr. Dickson has been acting chief inspector of mines. Like his predecessor, Mr. Dickson has risen from the ranks. He went to British Columbia in 1912 and went into the mines at Nanaimo. He quickly rose to be an overman at the Western Fuel Corporation's Reserve mine and later was made manager of that mine. In 1919 he was appointed to the British Columbia Board of Examiners and made an inspector of mines, positions that he held until he was appointed acting chief inspector of mines.

James Strang, formerly manager of the Extension colliery of the Canadian Collieries (Dunsmuir), Ltd., has been appointed to the British Columbia Board of Examiners and made an inspector of mines, to fill the positions made vacant by the promotion of James Dickson.

W. L. Wilshire, president of the West Virginia Coal & Coke Co., last week announced additional changes in the sales department, which, with the accounting and purchasing departments, was recently moved from Fairmont, W. Va., to the Atlas Building, Cincinnati. **H. E. Webster** has been named assistant to **R. C. Fitzgerald**, the new general sales manager. **J. Howard Magee**, formerly with the Knickerbocker Fuel Co. and the Western Maryland Ry., is now Eastern sales manager, with headquarters at 90 West St., New York City. A branch office has been opened at Norfolk, Va., in charge of **N. A. Lewis, Jr.** **Fred J. Walker**, formerly in charge of the Michigan territory, will have charge of the lakes and northern Ohio, with headquarters in Cleveland. **F. S. Fitzgerald** will be in charge of the Detroit office. **A. C. Ingersoll**, vice-president and general manager of the Ohio River Co., a subsidiary, which moves river-rail coal from the docks at Huntington, W. Va., will be general Western manager, with **W. W. Marting** as superintendent of river transportation.

J. Craig Nelson, formerly with the Central Pocahontas Coal Co., was appointed general sales manager for the Fort Dearborn Fuel Co. at a meeting of the officers of that company held in Cincinnati, Dec. 28. He will have his headquarters at Norfolk, Va. **W. G. Brinson** has been added to the staff at that point.

Kenneth Lindsay, a London, (England) Laborite, speaking of the British coal strike, at the Hungry Club in the Fort Pitt Hotel, Pittsburgh, recently,

said the British miners went back to work at lower wages and all the issues at stake remain unsettled. He contended that labor was forced into the strike and that no attempt was made by labor to take over the functions of government. He added that it was King and Cabinet against the general strike council. Mr. Lindsay is a graduate of Oxford and has been identified with various labor movements in Great Britain.

H. D. Everett has been elected vice-president and general manager of the Smokeless Fuel Co., with headquarters in Charleston, W. Va. He succeeds **George P. Daniels**, who resigned. **Spottswood B. Hall**, manager of the Norfolk (Va.) office, has been appointed manager of the New York office, vice **Ray H. Monsell**, resigned, and **E. H. Jarvis** has been named manager of the Norfolk office. These changes became effective Jan. 1.

Walter W. Liddle, of Balkan, Ky., who for the past five years has been connected with the Virginia Harlan Coal Corporation, has resigned as secretary-treasurer, effective Dec. 31. Mr. Liddle will be connected with the Benito Mining Co., of Pineville, Ky., which will handle the output of the Whipple mine of the Virginia Harlan company.

A. C. Watts has been appointed assistant to the senior vice-president of the Utah Fuel Co., **Theodore C. Keller**, and will have charge of all the coal properties of the Utah Fuel Co., the Calumet Fuel Co. and the Pleasant Valley Coal Co., with head office at Salt Lake City, Utah. Mr. Watts, who was graduated from the Colorado School of Mines in 1902, has been in the employ of the company since 1907. He was second president of the Rocky Mountain Coal Mining Institute and also has been president of the Utah Society of Engineers.

J. B. Marks was elected executive vice-president of the Colorado Fuel & Iron Co. at a meeting of the board of directors on Dec. 30. The appointment, which became effective Jan. 1, gives Mr. Marks supervision over all departments of the company's activities.

Obituaries

William Harper Huff, retired president of the Victor-American Fuel Co., died Dec. 29, at his home, in Denver, Colo. He was 59 years old and had lived in Denver over 40 years. Death was caused by angina pectoris with complications which had confined him to his home since early October. Mr. Huff was born in Peoria, Ill., and when he was 16 went to Denver, where he was employed by the late Delos Chappell, president of the Victor Fuel Co. Following this company's

merger with the American Fuel Co., he became successively general sales agent, second vice-president, vice-president and in 1917 became president. He was a director of the National Coal Association and during the war spent many months in Washington in the interests of more efficient production and distribution of coal. Since his retirement from business in 1924, following a serious illness, Huff had done considerable writing on the coal industry. He was a lover of literature and music and wrote light verse for children. He is survived by Mrs. Huff and his two brothers.

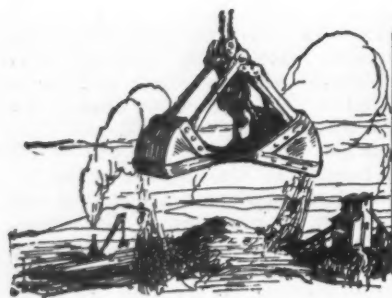
Byron A. Harris, 48, vice-president and general manager of the Colorado-Utah Coal Co., Denver, Colo., died Dec. 24 as a result of complications three days after he contracted a cold. Mr. Harris was born in Oskaloosa, Iowa, and spent his life in the mining business, managing properties owned by himself and three brothers. Going to Denver in 1914, he established headquarters for the Colorado-Utah Coal Co. and his other coal-mine holdings there. He is survived by his wife, one son, one daughter and three brothers.

Morris W. Hartwell, of the F. G. Hartwell Coal Co., Chicago wholesalers, died Dec. 31 as the result of a fractured skull and a bullet wound in the head inflicted in a mysterious attack in the South side of Chicago. He was 61 years old. Until about a year and a half ago Mr. Hartwell was in charge of the retail activities of the Hartwell company, but when the yards were sold at that time he took hold in the wholesale end.

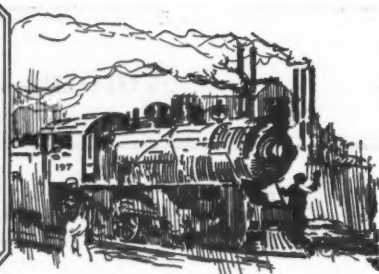
James L. Brierton, vice-president and general manager of the Central Iron & Coal Co., Holt, Ala., died at Birmingham, Dec. 23, due to a general breakdown in his health. Going to Alabama from Missouri in 1902, he was connected with several industrial operations prior to going with the Central Iron & Coal Co. as assistant superintendent of the furnaces and coke plant at Holt, later being made vice-president and general manager, in which position he had jurisdiction over the entire operations of the company, with coal mines at Kellerman, Ala., and the Ensley plant of the Semet-Solvay Company. He also was associated with the Universal Pipe & Radiator Co., with plants at Holt, Bessemer and Anniston. Mr. Brierton was a member of the Alabama Mining Institute. He was 52 years of age and unmarried. Interment was made at Festus, Mo., his old home.

Association Activities

A meeting of the Board of Directors of the recently organized **Ohio Coal Operators' Association** has been announced in Columbus Jan. 6. One of the questions to be discussed is that of the recent report made by the fact-finding committee of the Ohio Chamber of Commerce, headed by Samuel S. Wyer, an engineer of Columbus. Questions of policy in treating with the United Mine Workers of America also will be discussed.



Production And the Market



Routine Movement Prevails as Market Pauses Between Prospect and Retrospect

Bituminous coal men last week were lost between prospect and retrospect. Actual spot trading was confined, for the most part, to routine movements to take care of current requirements of industry and retail consumers. There was little open consideration given to contracts or to storage buying in anticipation of a suspension in the unionized districts on April 1. In the non-union fields interest centered upon readjustments in wage rates advanced two months ago.

The export trade, which added so much zest to the general market during the last half of 1926, is fading out of the picture. There is, to be sure, considerable coal going over the piers for overseas buyers, but most of the tonnage is on old orders and uncompleted contracts. When these have been cleaned up, the export branch of the industry will sink back to its relative insignificance. Nevertheless the total movement has been one of the outstanding features of the year.

Prices Still Weaken

The settling down process in spot prices still continues. *Coal Age* Index of spot bituminous prices on Jan. 3 was 193 and the corresponding weighted average price was \$2.33. This was a decline of 5 points and 7c. from the figures for Dec. 27 and was due largely to further declines in tidewater quotations and in prices on Ohio coals. In inland markets large high-volatile coal was somewhat stronger. On the whole

the Illinois-Indiana schedules were well maintained.

These appreciations in spot prices on some West Virginia and Kentucky offerings and on Illinois and Indiana screenings were the result of curtailed production rather than increased demand. In the case of Kentucky and of Alabama, operators were aided in their curtailment program by flood conditions which made production impossible at a number of mines and also slowed up transportation.

Output in 1926 Near Record

Notwithstanding the drop in output during the holiday weeks, the total bituminous production for the year just closed is exceeded only by the record made in 1918, when 579,385,820 tons were mined. To Dec. 25, 1926, the cumulative output for the year was estimated by the U. S. Bureau of Mines at 568,226,000 net tons—less than 500,000 tons under the total output for the calendar year of 1920. During the Christmas week production approximated 10,480,000 net tons.

The non-union wage situation is very much complicated at the present time. In the Connellsville region, leading independent ovens have reiterated their intention of maintaining the November, 1926, advances until the end of the present coal year. Practically the same position is taken by the open-shop interests in western Pennsylvania, but there seems to be no unanimity of ideas or action in central Pennsylvania.

More Reductions in West Virginia

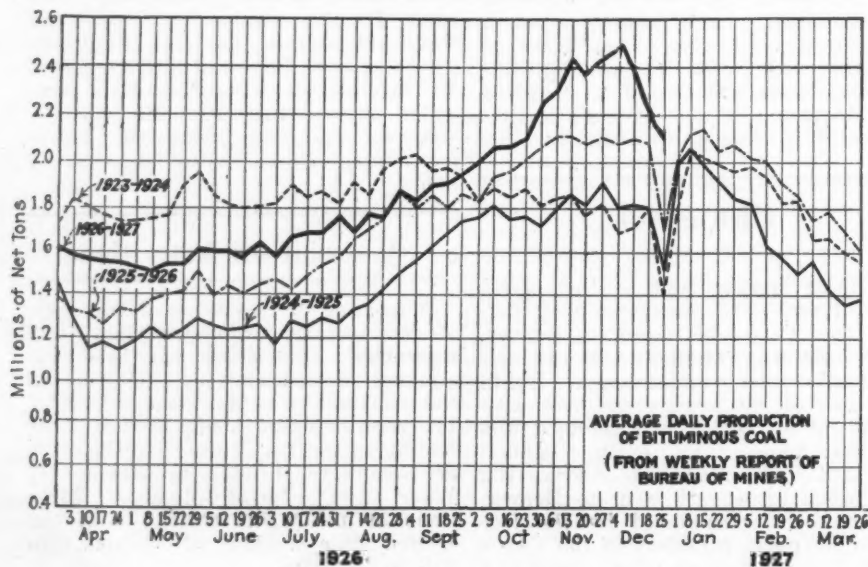
In the low-volatile districts, the Pocahontas and Winding Gulf districts have taken the lead in a movement to revert to the 1917 wage basis. In some other fields lesser reductions have been made and in still others producers would like to hold to the Nov. 1, 1926, basis until the situation in the union fields is clarified. In the meantime, buyers are putting pressure upon non-union operators to cut wages so that prices may be further reduced.

Domestic anthracite still suffers from holiday indifference and from the heavy buying of the earlier months of the coal year. During the week ended Dec. 25 total production declined to 1,503,000 net tons, but even that tonnage presented a problem to the distributors. Steam coals, on the other hand, showed unusual activity. No. 1 buckwheat was in such strong demand that some shippers picked up coal out of storage.

In the Connellsville coke region the question of greatest interest is first-quarter contracts. With no retreat on wages, ovens have fixed \$4@4.25 as the basis for sales of furnace coke for first-quarter delivery. Spot prices have stiffened and little desirable furnace coke can now be purchased in the open market under \$4.

Midwest Markets Mark Time

Midwestern trading was at a minimum during the holiday week. On the steam side there was some activity and



Estimates of Production

(Net Tons)

BITUMINOUS

	1925	1926
Dec. 11.....	12,908,000	14,090,000
Dec. 18 (a).....	12,684,000	13,477,000
Dec. 25 (b).....	8,431,000	10,480,000
Daily average.....	1,686,000	2,096,000
Cal. yr. to date (c).....	512,676,000	568,226,000
Daily av. to date.....	1,696,000	1,878,000

ANTHRACITE

Dec. 11.....	64,000	1,807,000
Dec. 18 (a).....	56,000	1,794,000
Dec. 25 (b).....	33,000	1,503,000
Cal. yr. to date (c).....	61,690,000	83,878,000

BEEHIVE COKE

Dec. 11.....	288,000	184,000
Dec. 18 (a).....	313,000	176,000
Dec. 25 (b).....	261,000	146,000
Cal. yr. to date (c).....	10,475,000	11,341,000

(a) Revised since last report. (b) Subject to revision. (c) Adjusted to equalize number of days in the two years.

also appreciation in prices, but this was due as much to curtailed output as to increased industrial interest. Little buying was for storage purposes. On the domestic side the only real development was the announcement that the leading Illinois, Indiana and western Kentucky operators would endeavor to maintain December quotations on January business.

The movement of Eastern coal to the Chicago market was light last week. It was reported that smokeless operators would ask \$3.75 on lump and egg and \$3 on mine-run this month, but pessimists doubt whether these prices can be maintained. High-volatile prepared coals from West Virginia and eastern Kentucky are freely offered at \$2.50@3.25 for the ordinary run.

Conditions at the consuming centers were reflected in the dearth of orders for large sizes at the southern Illinois mines. Despite reduced running time, most operations are carrying "no bills" which they hope to move early this

month. Railroad orders were none too plentiful at the shaft mines but strip pits enjoyed a fair share of this business. Steam sizes were in good demand in the Duquoin and Jackson County area.

Railroad Orders Help

Railroad buying still is the backbone of the movement out of the Mt. Olive district. Some improvement also was noted in domestic demand, with ordinary steam sizes easy. The Standard district continues to stagger under an accumulation of "no bills" of all sizes except No. 2 nut. Running time ranges from two days a week at some operations up to four and five days at the most favored mines, where railroad buying helps out the situation.

Colder weather stimulated local domestic demand in the St. Louis market. Although medium priced coals had the edge in buying, there were a number of sizeable orders placed for southern Illinois coals. Smokeless demand was

weak and the call for anthracite and coke was feeble. Steam buyers are able to pick up bargains in western Kentucky grades. A little coal is going into storage. Country domestic demand is fair; steam, somewhat inactive.

The last week in December found Kentucky production reduced, demand light and prices reasonably well maintained. In a few cases quotations advanced. In the eastern part of the state flood conditions made it easy for operators to curtail mining. Although freezing weather checked the rising waters, it is believed that several days will elapse before normal conditions can be restored.

Kentucky Prices Up

Spot quotations last week showed increases in the Louisville market on mine-run and on eastern Kentucky slack. Block coal was held at \$2.50@3. Eastern Kentucky mine-run was \$1.75 @ \$2, and western, \$1.35@1.75. Eastern Kentucky slack jumped to \$1.65@

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F.O.B. Mines

Low-Volatile, Eastern					Midwest						
	Market Quoted	Jan. 4, 1926	Dec. 20, 1926	Dec. 27, 1926	Jan. 3, 1927†		Market Quoted	Jan. 4, 1926	Dec. 20, 1926	Dec. 27, 1926	Jan. 3, 1927†
Smokeless lump.....	Columbus....	\$3.55	\$3.75	\$3.75	\$3.75@ \$4.00	Franklin, Ill. lump.....	Chicago.....	\$3.50	\$4.00	\$4.00	\$4.00
Smokeless mine run.....	Columbus....	2.85	3.00	2.60	2.25@ 2.75	Franklin, Ill. mine run....	Chicago.....	2.50	2.60	2.60	2.50@ 2.75
Smokeless screenings.....	Columbus....	2.60	2.25	2.10	1.75@ 2.00	Franklin, Ill. screenings....	Chicago.....	1.85	1.75	1.75	1.75@ 2.00
Smokeless lump.....	Chicago....	4.00	3.75	3.50	3.25@ 3.75	Central, Ill. lump.....	Chicago.....	3.10	2.75	2.75	2.50@ 3.00
Smokeless mine run.....	Chicago....	2.10	2.75	2.75	2.50@ 3.00	Central, Ill. mine run....	Chicago.....	2.30	2.10	2.10	2.00@ 2.25
Smokeless lump.....	Cincinnati....	4.10	3.60	3.50	3.00@ 3.75	Central, Ill. screenings....	Chicago.....	1.40	1.35	1.35	1.35@ 1.50
Smokeless mine run.....	Cincinnati....	2.50	2.35	2.75	2.50@ 3.00	Ind. 4th Vein lump.....	Chicago.....	3.00	4.00	3.35	3.25@ 3.50
Smokeless screenings.....	Cincinnati....	1.80	1.85	2.50	2.00@ 2.50	Ind. 4th Vein mine run....	Chicago.....	2.30	2.35	2.35	2.25@ 2.50
*Smokeless mine run.....	Boston.....	4.60	5.30	5.25	5.00@ 5.25	Ind. 4th Vein screenings....	Chicago.....	1.85	1.85	2.00	2.00
Clearfield mine run.....	Boston.....	2.00	2.60	2.60	1.95@ 2.70	Ind. 5th Vein lump.....	Chicago.....	2.50	3.00	2.75	2.50@ 3.00
Cambridge mine run.....	Boston.....	2.30	2.95	2.90	2.25@ 3.00	Ind. 5th Vein mine run....	Chicago.....	1.95	2.15	2.10	2.00@ 2.25
Somerset mine run.....	Boston.....	2.10	2.75	2.75	2.10@ 2.80	Ind. 5th Vein screenings....	Chicago.....	1.40	1.40	1.40	1.40@ 1.60
Pool 1 (Navy Standard)....	New York....	2.95	3.70	3.70	3.50@ 3.75	Mt. Olive lump.....	St. Louis....	2.85	2.85	2.85	2.75@ 3.00
Pool 1 (Navy Standard)....	Philadelphia....	2.95	3.55	3.35	3.15@ 3.25	Mt. Olive mine run.....	St. Louis....	2.00	2.50	2.50	2.50
Pool 1 (Navy Standard)....	Baltimore....	2.30	3.25	2.60	2.50@ 2.75	Mt. Olive screenings....	St. Louis....	1.75	1.50	1.50	1.50
Pool 9 (Super. Low Vol.)....	New York....	2.30	2.60	2.60	2.50@ 2.75	Standard lump.....	St. Louis....	2.40	2.35	2.35	2.25@ 2.50
Pool 9 (Super. Low Vol.)....	Philadelphia....	2.30	3.10	2.95	2.90@ 3.00	Standard mine run.....	St. Louis....	1.80	1.85	1.80	1.75@ 1.90
Pool 9 (Super. Low Vol.)....	Baltimore....	2.15	2.85	2.10	2.00@ 2.25	Standard screenings....	St. Louis....	.85	1.05	1.20	1.15@ 1.25
Pool 10 (H.Gr. Low Vol.)....	New York....	2.05	2.35	2.35	2.25@ 2.50	West Ky. block.....	Louisville....	2.00	2.60	2.60	2.50@ 2.75
Pool 10 (H.Gr. Low Vol.)....	Philadelphia....	2.05	2.55	2.70	2.60@ 2.75	West Ky. mine run.....	Louisville....	1.35	1.50	1.50	1.35@ 1.75
Pool 10 (H.Gr. Low Vol.)....	Baltimore....	1.95	2.50	1.85	1.80@ 1.95	West Ky. screenings....	Louisville....	.95	1.25	1.25	1.10@ 1.40
Pool 11 (Low Vol.).....	New York....	1.75	2.10	2.10	1.90@ 2.25	West Ky. block.....	Chicago....	2.25	2.50	2.50	2.25@ 2.75
Pool 11 (Low Vol.).....	Philadelphia....	1.90	2.35	2.50	2.40@ 2.60	West Ky. mine run.....	Chicago....	1.50	1.85	1.85	1.75@ 2.00
Pool 11 (Low Vol.).....	Baltimore....	1.70	2.15	1.75	1.75@ 1.80						
High-Volatile, Eastern					South and Southwest						
Pool 54-64 (Gas and St.)....	New York....	1.60	1.80	1.80	1.65@ 1.85	Big Seam lump.....	Birmingham..	2.75	2.85	2.85	2.75@ 3.00
Pool 54-64 (Gas and St.)....	Philadelphia....	1.60	2.10	1.90	1.80@ 1.90	Big Seam mine run.....	Birmingham..	2.10	1.85	1.85	1.75@ 2.00
Pool 54-64 (Gas and St.)....	Baltimore....	1.65	1.95	1.50	1.45@ 1.55	Big Seam (washed).....	Birmingham..	2.30	2.10	2.10	2.00@ 2.25
Pittsburgh acid gas.....	Pittsburgh....	2.65	2.60	2.60	2.50@ 2.75	S. E. Ky. block.....	Chicago.....	3.10	3.00	2.85	2.50@ 3.25
Pittsburgh gas mine run....	Pittsburgh....	2.10	2.20	2.20	2.15@ 2.30	S. E. Ky. mine run.....	Chicago.....	1.85	2.10	1.95	1.80@ 2.15
Pittsburgh mine run (St.)....	Pittsburgh....	2.05	2.10	2.10	2.00@ 2.25	S. E. Ky. block.....	Louisville....	3.00	3.00	2.75	2.50@ 3.00
Pittsburgh slack (Gas)....	Pittsburgh....	1.55	1.70	1.75	1.60@ 1.70	S. E. Ky. mine run.....	Louisville....	1.55	2.00	1.85	1.75@ 2.00
Kanawha lump.....	Columbus....	2.25	2.35	2.35	2.25@ 2.75	S. E. Ky. screenings....	Louisville....	1.20	1.60	1.45	1.65@ 2.00
Kanawha mine run.....	Columbus....	1.70	2.05	1.85	1.75@ 2.00	S. E. Ky. block.....	Cincinnati....	3.10	2.60	2.60	2.75@ 3.25
Kanawha screenings.....	Columbus....	1.15	1.35	1.35	1.25@ 1.50	S. E. Ky. mine run.....	Cincinnati....	1.60	1.70	2.00	1.50@ 1.75
W. Va. lump.....	Cincinnati....	2.75	2.35	2.50	2.50@ 3.00	S. E. Ky. screenings....	Cincinnati....	1.10	1.50	1.60	1.25@ 1.75
W. Va. gas mine run....	Cincinnati....	1.60	1.85	1.85	1.75@ 2.00	Kansas lump.....	Kansas City..	5.00	4.60	4.60	4.50@ 4.75
W. Va. steam mine run....	Cincinnati....	1.60	1.75	2.10	1.60@ 1.75	Kansas mine run.....	Kansas City..	3.10	3.00	3.00	3.00
W. Va. screenings.....	Cincinnati....	1.10	1.50	1.60	1.25@ 1.60	Kansas screenings....	Kansas City..	2.30	2.30	2.30	2.35
Hooking lump.....	Columbus....	2.35	2.85	2.75	2.25@ 2.75						
Hooking mine run.....	Columbus....	1.85	2.05	1.85	1.75@ 2.00						
Hooking screenings.....	Columbus....	1.25	1.60	1.45	1.35@ 1.50						
Pitts. No. 8 lump.....	Cleveland....	2.30	2.50	2.50	2.00@ 2.75						
Pitts. No. 8 mine run....	Cleveland....	1.80	1.95	1.95	1.85@ 1.95						
Pitts. No. 8 screenings....	Cleveland....	1.50	1.65	1.65	1.60@ 1.70						

* Gross tons, f.o.b. vessel, Hampton Roads.
† Advances over previous week shown in heavy type; declines in *italics*.

* Gross tons, f.o.b. vessel, Hampton Roads.

† Advances over previous week shown in heavy type; declines in italics.

Current Quotations—Spot Prices, Anthracite—Gross Tons, F.O.B. Mines

		January 4, 1926		December 27, 1926		January 3, 1927†	
	Market Quoted	Independent	Company	Independent	Company	Independent	Company
Broken.....	New York....	\$2.34		\$8.50@9.25		\$8.50@9.25	
Broken.....	Philadelphia....	2.39		8.25@9.15		8.50@9.15	
Egg.....	New York....	2.34		8.75@9.25		8.75@9.25	
Egg.....	Philadelphia....	2.39		8.50@9.15		9.00@9.15	
Egg.....	Chicago....	5.06	\$9.50@10.00	8.26	8.13	8.26	8.13
Stove.....	New York....	2.34		9.25@9.75	9.25@9.50	9.00@9.50	9.25@9.50
Stove.....	Philadelphia....	2.39		9.40@10.25	9.25@9.50	9.40@10.25	9.25@9.50
Stove.....	Chicago....	5.06		8.71	8.58	8.71	8.58
Chestnut.....	New York....	2.34	10.00@11.00	9.00@9.50	8.75@9.15	8.75@9.25	8.75@9.15
Chestnut.....	Philadelphia....	2.39		9.15@9.75	9.00@9.15	9.15@9.75	9.00@9.15
Chestnut.....	Chicago....	5.06	10.00@11.00	8.48	8.53	8.48	8.53
Pea.....	New York....	2.22		6.00@6.50	6.00@6.50	5.75@6.50	6.00@6.50
Pea.....	Philadelphia....	2.14		6.00@6.75	6.50	6.00@6.75	6.50
Pea.....	Chicago....	4.75	5.50@6.00	6.03	6.10	6.03	6.10
Buckwheat No. 1.....	New York....	2.22		2.50@3.00	2.50@3.50	2.75@3.00	2.50@3.50
Buckwheat No. 1.....	Philadelphia....	2.14		2.50@2.75	2.50@3.00	2.50@2.75	2.50@3.00
Rice.....	New York....	2.22		1.70@2.10	2.00@2.25	1.85@2.25	2.00@2.25
Rice.....	Philadelphia....	2.14		1.90@2.00	1.75@2.25	1.90@2.00	1.75@2.25
Barley.....	New York....	2.22		1.40@1.60	1.50@1.75	1.35@1.50	1.50@1.75
Barley.....	Philadelphia....	2.14		1.25@1.50	1.50@1.75	1.25@1.50	1.50@1.75
Birdeye.....	New York....	2.22		1.35@1.60	2.00	1.35@1.65	2.00

* Net tons, f.o.b. mines. † Advances over previous week shown in heavy type; declines in italics.

† Quotations withdrawn because of strike which started Sept. 1, 1925.

\$2. Public-utility buying kept up at a good rate throughout the holiday period, but other industrial and domestic demand was quiet. An early revival, however, is predicted.

Dock operators at the Head of the Lakes have been well satisfied with the volume of business handled during the past few weeks. Moreover, demand continues brisk, with prices firmly established at the higher figures announced some time ago. Smokeless is scarce. Anthracite is unusually active, with pea and buckwheat experiencing an unwonted popularity. At present the docks are carrying approximately 5,000,000 tons of commercial bituminous and 800,000 tons of anthracite.

Milder temperatures caused a slight letup in the rush of orders in the Twin Cities section last week. The breathing spell enabled a number of wholesalers to catch up on back orders. Whatever complaint is heard comes from the all-rail shippers who have been crowded out of some of the territory by the docks. The situation at Milwaukee is without important change. Demand fluctuates with the weather but prices are steady.

Southwestern Demand Slow

Holiday suspensions helped to reduce "no bills" in the Southwest last week, but domestic ordering was backward. This combination, however, strengthened the market in screenings, which were firmly held at \$2.35, with no differential between shaft and strip-pit coal. Zero weather toned up the domestic demand in Denver territory but there was no pickup in other parts of the country served by Colorado mines. The number of "no bills" dropped to 225 in southern Colorado while Denver demand cleaned up unbilled loads in the northern lignite fields.

In Utah the working time at the mines has moved up to four and five days a week. Heavier production is attributed to wider buying of the larger sizes of coal, so that an accumulation of unsold slack again is threatened. So far, however, nut leads in the number of "no bills." Unscreened slack is offered at \$1.25 and screened slack at \$2.25.

Factors in the Cincinnati market spent the last week of the old year laying plans for 1927. Standard shippers in the Pocahontas field declared their intention of checking price slumps and early January circulars named \$3.75 on lump and egg and \$3 on mine-run. Spot prepared, however, sold at \$3.50@3.75 and some consignment coal went as low as \$3.

Expect Lower Prices

Further weakening in high-volatile quotations are expected. That most of the West Virginia and eastern Kentucky producers will revert to the wage scales in effect prior to Nov. 1, 1926, is taken as an accepted fact by many of the traders in the Cincinnati market. In the meantime West Virginia prepared coal is selling at \$2.50@3 and Kentucky at \$2.75@3.25. Gas slack from Kentucky commanded as high as \$1.75 and West Virginia offerings reached \$1.60.

Coal movement through the Cincinnati gateway declined 45 per cent last week. The number of loads interchanged was 6,607 as compared with 12,040 cars the preceding week. The Louisville & Nashville was off 2,827 cars; the Chesapeake & Ohio, 2,338 cars. The movement of empties en route to the mines decreased from 13,035 to 11,593 cars. Cincinnati retail prices have settled down to \$9 on smokeless lump, \$5.75@6.50 on mine-run, \$7 on bituminous lump and \$5 on slack.

Central and southern Ohio trade was featureless during the holiday week. Steam buying was slow, retail fairly active. Retail prices at Columbus have declined to \$9.25@9.50 on smokeless, \$7.50@7.75 on Kentucky and West Virginia splint and block, and \$6.75@7 on Ohio coals. Southern Ohio output was down to 18 per cent of capacity; northern Ohio, little better. During the preceding week the No. 8 field produced 208,000 tons. Cleveland demand was quiet.

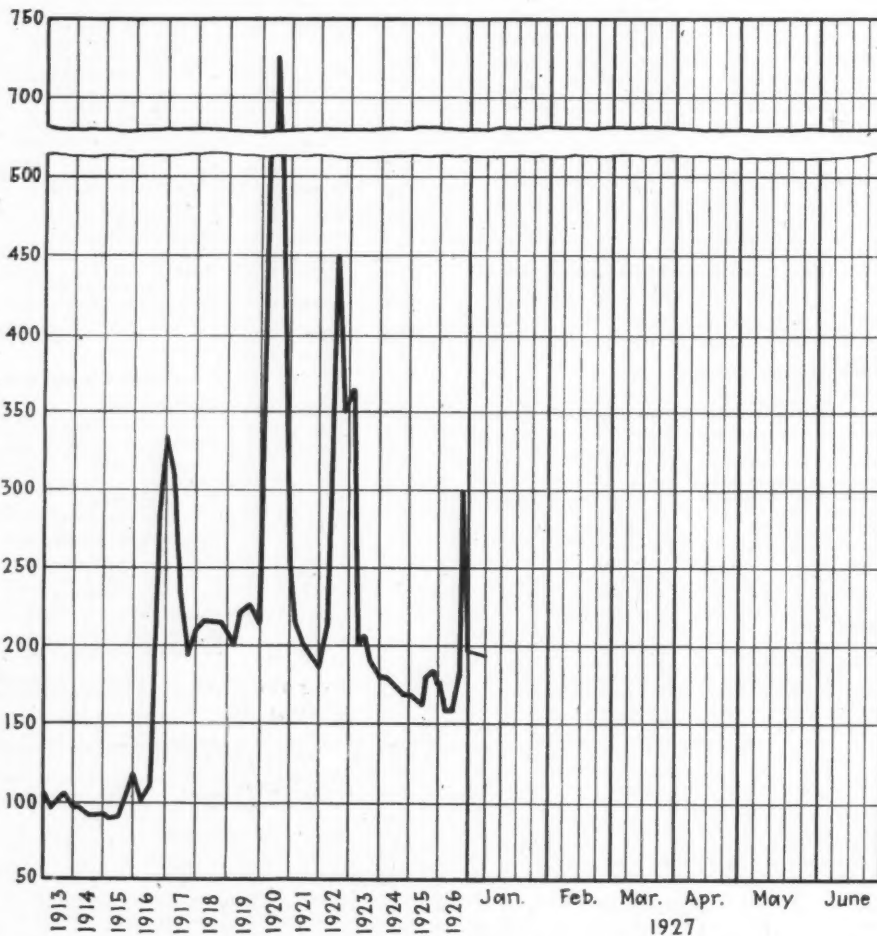
No Snap to Pittsburgh Trade

Notwithstanding a sharp cut in production in the Pittsburgh district the market was weak and colorless. Buyers waiting for wage reductions as the prelude to still lower prices seem

headed for disappointment. Leading Connellsville operators are committed to a policy of maintaining present wages until March 31 and some of the important West Virginia interests take a similar position. Producers look for heavier buying within the next two or three weeks.

Some of the predictions of a speedy collapse in demand seem to have missed fulfillment in central Pennsylvania. The principal grievance is not falling off in tonnage but gradual tapering off in prices. Loadings to Dec. 25 were 74,010 cars as compared with 70,486 cars during the corresponding period in November. Pool 1 was \$2.65@2.85 last week; pool 71, \$2.45@2.60; pool 9, \$2.35@2.40; pool 10, \$2.20@2.35; pool 11, \$2@2.15; pool 18, \$1.85@1.90.

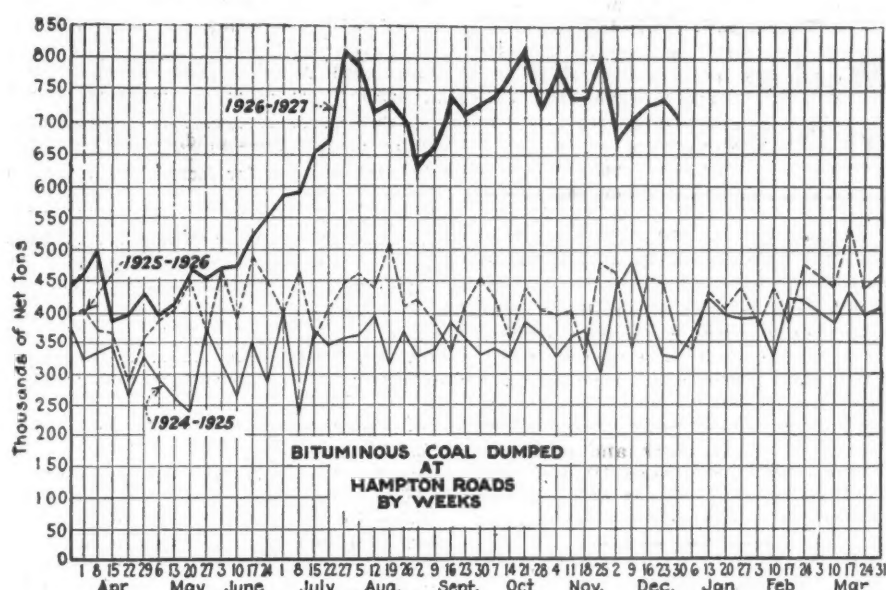
The Buffalo market is weak. Changes, however, are more the result of the holiday letdown than a further unsettling in business. Low-volatile quotations are unchanged. In the high-volatile list gas lump is weaker and steam lump stronger. Fairmont lump is \$2@2.25; mine-run, \$1.75@2; slack, \$1.45@1.60; Youghiogeny gas lump, \$2.45@3; slack, \$1.75@2; Pittsburgh and No. 8 steam lump, \$2.10@2.35; slack, \$1.50@1.65; Allegheny Valley mine-run, \$2.25@2.50.



Coal Age Index of Spot Prices of Bituminous Coal F.O.B. Mines

	1927 Jan. 3	1926 Dec. 27	1926 Dec. 20	1926 Dec. 13	1926 Jan. 4	1925 Jan. 5
Index	193	198	200	214	181	172
Weighted average price	\$2.33	\$2.40	\$2.42	\$2.59	\$2.19	\$2.08

This diagram shows the relative, not the actual, price on fourteen coals, representative of nearly 90 per cent of the bituminous output of the United States, weighted first with respect to the proportion each of slack, prepared and run-of-mine normally shipped, and second, with respect to the tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke: 1913-1918," published by the Geological Survey and the War Industries Board.



New England Outlook Discouraging

There is little to encourage the coal man in the New England situation. Inquiry is light and reserves are large enough to allow consumers to play a waiting game on prices. As a matter of fact, some consumers have postponed shipments in anticipation that wages will be reduced. Hampton Roads quotations on Navy Standard are draggy at \$5@5.25 gross, f.o.b. vessels. Some buyers expect a \$4.75 basis this month. Inland demand is moderate and prices on cars at Boston and Providence have dropped to \$7. Prices on all-rail Pennsylvania coals are slumping badly; receipts are light.

Bituminous inquiries at New York, on the other hand, are increasing. Aside from contract movement, however, actual business last week was small. Known coals hold to a definite price schedule, but "as-good-as" offerings of the same pools are 25 to 50c. less. There was a shortage of pool 1 at the piers last week because shippers declined to risk much tonnage on consignment.

The Philadelphia market is gradually settling down to normal after the export spree. Prices are easier and that fact dulls the consumer's interest in forward buying. Recent reductions have come about as the result of lower wages at some of the West Virginia and Pennsylvania operations. Railroads still try to dictate prices to the shippers. Export business is fading but bunker demand continues.

Baltimore Demand Falling

With export movement fast shrinking to normal proportions, the Baltimore market is thrown back upon an uninterested home demand for support. Prices, however, are fairly stable. In the Birmingham district the trade is still waiting for the appearance of a post-holiday buying movement. A number of mines have been kept idle by flood conditions. Steam coal quotations are slightly easier, with Big Steam mine-run \$1.75@2; washed, \$2@2.25; Carbon Hill mine-run, \$2@2.25; washed, \$2.25@2.50; Cahaba mine-run, \$2.25@2.75; washed, \$2.50@2.75; Black Creek washed, \$3@3.25; Corona mine-run, \$2.75; washed, \$3; Pratt mine-run and washed, \$2@2.25.

In the New York anthracite market there is more interest in No. 1 buckwheat than in domestic sizes. Some of the company shippers are picking up coal out of storage and independents are obtaining full company circular for the better grades of coal. Rice, too, is strong, but barley is weak. Domestic demand is slow, with egg the greatest laggard.

Moderate domestic demand also affects the Philadelphia market. Unless a severe cold spell comes to their rescue, independents will be compelled to slash prices. The steam side of the market is strong, with No. 1 buckwheat enjoying the cream of the demand. The hard-coal situation at Baltimore is without distinguishing features.

Coke Contract Situation Clearer

With leading independent ovens opposed to wage reductions, first-quarter contracts for Connellsville furnace coke will command \$4@4.25 on new business and contracts made last October at \$3.60@3.75 will be increased to \$4.25 or possibly more. The spot market, too, is firmer. The minimum on good furnace grades has advanced to \$4, although some coke is offered at \$3.50. Spot foundry is unchanged at \$4.75@5.25.

There was a decline of 17,240 tons in production of beehive coke in the Connellsville and Lower Connellsville region during the week ended Dec. 25, 1926, according to the Connellsville

Car Loadings and Supply

	Cars Loaded	
	All Cars	Coal Cars
Week ended Dec. 18, 1926.....	950,575	230,753
Week ended Dec. 11, 1926.....	998,715	237,735
Week ended Dec. 19, 1925.....	967,886	187,398
Week ended Dec. 12, 1925.....	1,008,824	191,884

	Surplus Cars		Car Shortages	
	All Cars	Coal Cars	All Cars	Coal Cars
Dec. 15, 1926.....	180,140	22,397
Dec. 8, 1926.....	164,580	15,335
Dec. 14, 1925.....	172,577	60,245

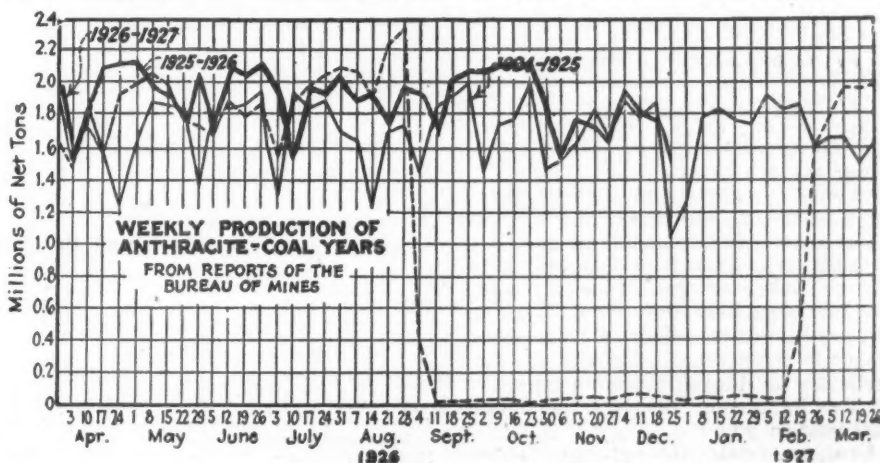
Courier. Furnace-oven output was 51,100 tons, a decrease of 10,200 tons when compared with the preceding week. Merchant-oven output was 62,260 tons, a decrease of 7,040 tons.

Marked Increase in Lignite

Production of lignite or brown coal in Germany rose from 87,000,000 metric tons in 1913 to 124,300,000 in 1925, while output during October, 1926, was at the rate of 158,000,000 tons a year.

The greatest incentive to this increase was the growing use of lignite as developed on central German deposits for its direct firing to produce electrical energy. Europe's largest power station, the Golpa Zschornowitz Works, near Bitterfeld, is a lignite operation. It develops 1,500,000,000 kw.-hr. annually in three plants, and furnishes electric power and lighting to adjacent industry in central Germany and to as distant cities as Berlin, Magdeberg and Leipzig. The electrolytic chemical industry, planted in central Germany during and since the war, consumes electrical energy from lignite. The potash and sugar-beet industries, which formerly used coal, have been adapted to lignite firing since the war.

The increased consumption of lignite energy in Germany is immediately appreciated when it is considered that in 1913 lignite was the source of only 23 per cent of Germany's production of electricity against 41.2 per cent in 1922, an increase of about 80 per cent. It is important to consider, however, that German lignite consumption is of transitory significance; German lignite reserves possess only about 2 per cent of this country's total resources of energy. In another 100 years or so German lignite may be exhausted at its present rate of consumption.



Foreign Market And Export News

British Coal Trade Working Toward Normal

London, England, Dec. 22.—The British industry is working back toward normal, but the progress is bound to be slow after the prolonged suspension of coal mining. Export prices are falling gradually, freight rates are weakening and foreign buyers are very cautious. Inquiries are plentiful but the proportion materializing into solid business is very disappointing.

Exports, it is true, are increasing, but much of the movement is on contracts entered into prior to the strike last May. Most of the British export coal is going to Italy and Mediterranean ports. Some is moving to Spain and South America, but shipments to France and Germany are extremely small.

Prices are irregular. Best Welsh Admiralty is 31/6; best Durham steams, 25/— to 27/—; best gas, 24/— to 25/—; unscreened bunkers, 24/— to 25/—.

British production during the week ended Dec. 11 reached 4,467,900 tons, or 82 per cent of the total for the corresponding week last year, according to a cabled report to Washington. There were 886,000 men at work during the week.

Imports plus production now represent approximately the normal amount of coal handled in the country, although exports are still below the customary figure. Cold weather is stimulating the demand for household coal. The usual holiday interruption to production and trade is probable this week and next. Unemployment on Dec. 13 was 1,410,700, although the value of this figure is doubtful for comparative purposes because of readjustment due to unemployment among the miners.

French Mines Hold Edge On Home Demand

Paris, France, Dec. 16.—Although importations of British coal have been resumed the demand for French fuel is strong and probably will continue so for some time. Industrial activity, however, is declining, and this, coming when Britain again seeks the French market, threatens the supremacy of the home mines.

Acting on the petition of a number of local business organizations in maritime cities, restrictions on bunkering at French ports have been removed. Prior to the taking of that action coal began to accumulate at the ports. Another step designed to permit a freer movement of French coal has been the cancellation of limitations on exports.

The agreement between the French authorities and the Kohlsyndikat on the commercialization of imports from

the Ruhr will go into effect the first of the year, according to latest advices. A definite arrangement also has been made with respect to prices on metallurgical coke, which will be 21 mks. at the ovens until May 31, 1927, and 19 mks. from June 1 to Dec. 31, 1927. Should the French consumers, however, elect to make straight thirteen-month contracts the price will be 19.75 mks. French consumers also have the option of entering into nine-month contracts from April 1, 1927, at 19 mks.

Weekly Exports Off

Bituminous exports from North Atlantic ports during the week ended Dec. 25, 1926, showed a marked decrease when compared with the preceding week, according to preliminary figures compiled by the Department of Commerce. The total for Christmas week, with figures from New York and Charleston not reported, was 536,223 gross tons. During the preceding week the total was 740,290 tons. For the week ended Dec. 11 the total was 502,490 tons.

The detailed figures were as follows:

Port	Week Ended Dec. 11 Gross Tons	Week Ended Dec. 18 Gross Tons	Week Ended Dec. 25 Gross Tons
New York....	15,300	5,600	—
Philadelphia....	128,689	112,050	86,092
Baltimore....	—	262,818	148,477
Norfolk....	331,092	344,077	303,654
Charleston....	27,409	15,745	—
Total.....	502,490	740,290	538,223

Export Clearances, Week Ended Dec. 30

FROM HAMPTON ROADS

	For United Kingdom:	Tons
Br. Str. Rachlin Head.....	8,472	
Br. Str. Cranley.....	6,546	
Grk. Str. Aghios Marcos.....	7,108	
Br. Str. Portcurno.....	6,712	
Span. Str. Artagnan Mendi.....	7,342	
Br. Str. Oakfield.....	5,977	
Br. Str. Maine.....	8,771	
Span. Str. Kaudi.....	4,552	
Grk. Str. Aghios Ioannis.....	7,888	
Nor. Str. Ravanger.....	4,852	
Br. Str. Simonburn.....	8,065	
Br. Str. Inverness.....	5,431	
Du. Str. Alsum.....	8,277	
Br. Str. Kotka.....	7,940	
Br. Str. Dumfries.....	5,556	
Br. Str. Tafna.....	6,603	

For West Africa:

Ital. Str. Gerarchia, for Dakar.....	7,505
For Brazil:	
Br. Str. Baron Maclay, for Rio Janeiro.....	8,559
Br. Str. Grelhead, for Rio Janeiro.....	6,107
Br. Str. Cardiff, for Para.....	4,500
Grk. Str. Theodoras, for Rio Janeiro.....	7,553
Br. Str. King Alfred, for Rio Janeiro.....	6,037
Br. Str. Kingswood, for Pernambuco.....	5,921
Nor. Str. Haugarland, for Rio Janeiro.....	8,378

For Argentine:

Br. Str. Gilmen Manor, for Rosario.....	4,820
Br. Str. King City, for Buenos Aires.....	4,023
Nor. Str. Tercera, for Buenos Aires.....	4,400
Du. Str. Alphonse, for Buenos Aires.....	4,826
Br. Str. Hildredale, for Villa Constitution.....	5,014
Fr. Str. Port de Dunkerque, for Buenos Aires.....	5,964

For British East Indies:

Br. Str. Telemachus, for Padang.....	284
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For England:

Grk. Str. Theofana, for London.....	6,891
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For Portugal:

Port Str. Mella, for Lisbon.....	4,390
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For Norway:

Nor. Str. Ingeren, for Bergen.....	7,208
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For Cuba:	
Dan. Str. Nordamerika, for Santa Lucia.....	2,024
Amer. Sch. Adelaide Day, for Manzanilla.....	954
Br. Str. Rowanpark, for Santiago de Cuba.....	2,227
Nor. Str. Thomas Haaland, for Havana.....	4,406
For Uruguay:	
Br. Str. Socrates, for Montevideo.....	5,829
For Ecuador:	
Nor. Str. Betty, for Guayaquil.....	2,094
For Italy:	
J.-S. Str. Srebrana for Trieste.....	5,003

FROM BALTIMORE

For England (to Queenstown for orders):	
Belg. Str. Belgier.....	7,143
Br. Str. Sedgpool.....	8,363
Br. Str. Troglisson.....	6,956
Ital. Str. Nirvo.....	6,535
Br. Str. Anglo Mexican.....	7,323
Br. Str. Portgwarra.....	7,181
Br. Str. Romera.....	7,465
Span. Str. Alfonso Perez.....	7,441
Br. Str. Cape York.....	8,509
Br. Str. Ikala.....	6,126
Br. Str. Ryburn.....	4,385
Ital. Str. Clara Camus.....	8,460
Br. Str. Pentraeth.....	3,779
Br. Str. Carlin.....	5,332
Br. Str. Beachcliffe.....	6,998
Br. Str. West Hope.....	8,008
Span. Str. Luckana.....	4,544
Span. Str. Arinda Mendi.....	8,983
Am. Str. Katherine May.....	1,173
Br. Str. Atlantic.....	4,388
Grk. Str. Kate.....	7,809
Br. Str. Tarantla.....	6,591
Grk. Str. Chloe.....	7,996

For Italy:	
Ital. Str. Premuda, for Genoa.....	6,223
Ital. Str. Maria Adela, for Genoa.....	9,687
Ital. Str. Humanitas, for Genoa.....	6,378

For Argentine:	
Br. Str. Bayne, for La Plata.....	5,967

For Cuba:	
Br. Str. Kintyre, for Santos.....	6,098

For Egypt:	
Br. Str. Cookham, for Alexandria.....	5,044

For France:	
Ital. Str. Caterina Gerolomich, for La Pallice.....	6,542

FROM PHILADELPHIA

For United Kingdom:	
Br. Str. Misty Law.....	—
For France:	
Ital. Str. Monarca and Br. Str. Monckton, for Marseilles.....	—
Nor. Str. Modemi, for Havre.....	—
For Italy:	
Ital. Str. Barbana, for Genoa.....	—
For Cuba:	
Nor. Str. Sokndal, for Havana.....	—
For Brazil:	
Br. Str. Treverbyn, for Rio Janeiro.....	—
Br. Str. Bellview, for Bahia.....	—
For Martinique:	
Nor. Str. Erivken, for Fort de France.....	—

Hampton Road Coal Dumpings*

(In Gross Tons)

	Dec. 23	Dec. 30
N. & W. Piers, Lamberts Pt.: Tons dumped for week.....	270,715	274,657
Virginian Piers, Sewalls Pt.: Tons dumped for week.....	163,000	149,777
C. & O. Piers, Newport News: Tons dumped for week.....	209,937	202,599

*Data on cars on hand, tonnage on hand and tonnage waiting withheld due to shippers' protest.

Pier and Bunker Prices, Gross Tons

PIERS

	Dec. 23	Dec. 30†
Pool 1, New York.....	\$6.50@ \$6.75	\$6.55@ \$6.75
Pool 9, New York.....	5.50@ 5.75	5.50@ 5.75
Pool 10, New York.....	5.25@ 5.50	5.25@ 5.50
Pool 11, New York.....	4.75@ 5.25	4.75@ 5.25
Pool 9, Philadelphia.....	5.60@ 6.10	5.55@ 6.05
Pool 10, Philadelphia.....	5.40@ 5.60	5.40@ 5.60
Pool 11, Philadelphia.....	5.00@ 5.20	4.95@ 5.20
Pool 1, Hamp. Roads.....	5.50	5.25
Pool 2, Hamp. Roads.....	5.20	5.00
Pool 3, Hamp. Roads.....	5.00@ 5.10	4.75@ 4.85
Pools 5-6-7, Hamp. Rds.....	4.80	4.76

BUNKERS

Pool 1, New York.....	\$6.75@ \$7.00	\$6.60@ 7.00
Pool 9, New York.....	5.75@ 6.00	5.75@ 6.00
Pool 10, New York.....	5.50@ 5.75	5.50@ 5.75
Pool 11, New York.....	5.00@ 5.50	5.00@ 5.50
Pool 9, Philadelphia.....	5.85@ 6.35	5.80@ 6.30
Pool 10, Philadelphia.....	5.65@ 5.85	5.65@ 5.75
Pool 11, Philadelphia.....	5.25@ 5.45	5.20@ 5.40
Pool 1, Hamp. Roads.....	5.60	5.35
Pool 2, Hamp. Roads.....	5.30	5.15
Pools 5-6-7, Hamp. Rds.....	4.90	4.85

†Advance over previous week shown in heavy type, declines in *italics*.

Coming Meetings

Monongahela Coal Association. Annual meeting, Jan. 13, at Morgantown, W. Va. Secretary, D. H. Pape, Morgantown, W. Va.

American Society of Civil Engineers. Annual meeting, Jan. 19-21, 1927, at Engineering Societies Bldg., New York City. Secretary, George T. Seabury, 29 West 39th St., New York City.

American Wood Preservers' Association. Annual meeting, Jan. 25-27, 1927, at Nashville, Tenn. Secretary, E. J. Stocking, 111 W. Washington St., Chicago, Ill.

Philadelphia Coal Club. Annual meeting, Jan. 27, 1927, at the Bellevue-Stratford Hotel, Philadelphia, Pa. Secretary, Charles K. Scull, Philadelphia, Pa.

Northeast Kentucky Coal Association. Annual meeting, Jan. 27, 1927, at Ventura Hotel, Ashland, Ky., Secretary, C. J. Neekamp, Ashland, Ky.

American Institute of Electrical Engineers. Midwinter convention, Feb. 7-10, Engineering Societies Bldg., New York. Secretary, F. L. Hutchinson, 33 W. 39th St., New York City.

American Institute of Mining and Metallurgical Engineers. Annual meeting, Feb. 14-17, 1927, Engineering Societies Bldg., New York City. Secretary, H. Foster Bain, 29 West 39th St., New York City.

New Companies

The Dixo Block Coal Co., Huntington, W. Va., has just been organized with a capital stock of \$25,000. Incorporators of the new company are L. T. Vass, E. H. Brooks, O. J. Deegan, A. W. Fitzwater and J. C. Clapperton, all of Huntington.

The Rice Coal Co., Swamp Branch, Johnson County, Ky., capital \$10,000, has been chartered by Katherine Rice, Emma Rice and Sherman Rice. It will be an operating company.

The Millers Creek Mining Co., Louisville, Ky., having capital of \$25,000, has been incorporated by R. C. Jordan, Louis Ernst, J. H. Bell, E. W. Ernst and J. S. Houston. The latter is general manager and superintendent. The others are all officials of the Louisville Firebrick Works. The Millers Creek plant, formerly operated by the Millers Creek Block Coal Co., has been purchased. The plant's capacity is about four cars a day, and it has its own power plant and equipment.

The Hillside Coal Co. was incorporated in Henryetta, Okla., early in November, by Frank Masoero and John Bertero.

The Blue Ribbon Coal Co., of Paris, Logan County, Ark., with a capital of \$15,000, has been incorporated by C. A. Gaither, president, and Lyle J. Gaither, secretary-treasurer.

The M. & P. Coal Co., with a capital of \$10,000, has been incorporated at Pittsburg, Kan.

New Equipment

Novel Meter Panel Quickly Shows Up Boiler Losses

A new boiler meter panel brought out by the Republic Flow Meters Co., contains a graphic boiler meter in which provision has been made for six electric recording elements exactly the same as have been used in the company's flow-meter recorders. These elements record on one 12-in. chart of the strip type which affords uniform time values at all points of the scale and permits ready comparison of records, since the time arc maintains the

into three zones, giving, in effect, three distinct charts, all synchronized and having the advantage of continuous juxtaposition for ready comparison. In each zone it has been found almost impossible to combine more than two records without endangering the value of the records through interweaving.

In the operation of any boiler, there are two factors of paramount importance, such as the rate of heat absorption, or the work done by the boiler, and the rate of heat loss. The steam-flow graph is a positive record of the heat absorption. Although the heat loss in the boiler is really a combination of various losses, it so happens that the stack loss is the major item subject to the widest variation, so that a record of the CO₂ content and the temperature of the waste gases may be taken as a satisfactory operating index of the total boiler losses and of the boiler efficiency. Therefore, both the CO₂ and the stack temperature are charted so that the two records may be observed simultaneously and in conjunction with the steam flow.

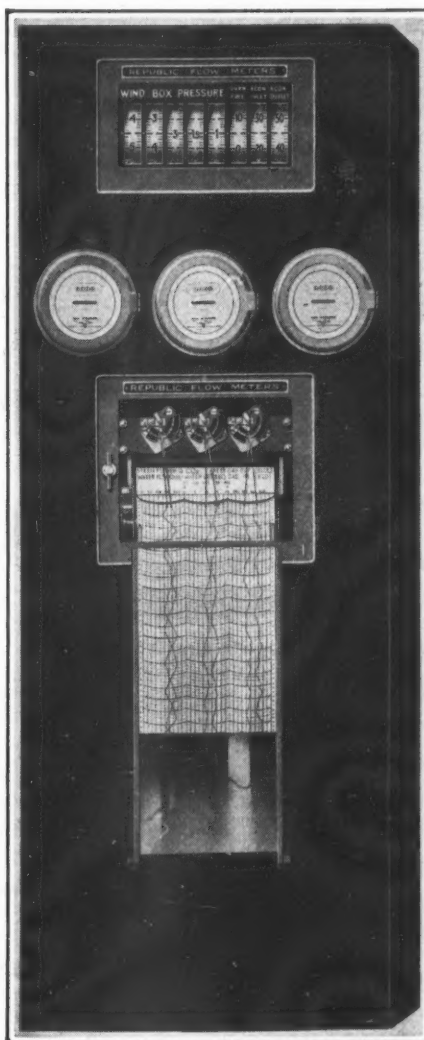
Besides these three records the choice of auxiliary records desirable will be determined by the character of the steam generating equipment. If economizers are used, the flue-gas temperatures entering and leaving are useful, as well as the water temperature leaving the economizer. With air preheaters a knowledge of the temperature of the inlet and outlet air is necessary in working out the boiler-room heat balance.

In addition to the graphic records outlined for the boiler meter chart, there are certain conditions of operation, such as drafts, best shown by an indicating instrument. These instruments are all embodied in one case, known as the Republic draft indicator which, with the integrating instruments necessary for the calculation and logging of results, is mounted along with the graphic boiler meter, so that the one panel affords a complete survey of the boiler operation.

Though Variable in Speed This Drive Is Positive

A type of positive-drive change gear, known as the "P.I.V." (positive infinitely variable), in which it is possible to alter the speed ratio between a driving and a driven shaft to an indefinite degree within the range of the gear, has been developed by the P.I.V. Gear Syndicate, Ltd., 7 Princes Street, Westminster, London, S.W.1.

The essential principle of the gear consists in the use of a driving chain of special construction which runs, if necessary, at short centers between two split pulleys of the opposed conical disk type, one set on each shaft, sloping down at an angle of 30 deg. to the shaft on the inner faces. These faces contain alternate ribs and grooves radiating from the center, which are broader at the periphery and narrower at the



Comparisons Easily Made

Being a recording as well as indicating device the record of the previous shift is in full view of the working shift. They may thus maintain or better this record if possible.

same position relative to the eye. The chart is driven by an electric clock at a normal rate of travel of one inch per hour. According to *Power*, the entire day's record is visible at all times, giving one shift the opportunity to compare results with another.

From the illustration it will be seen that the boiler meter chart is divided

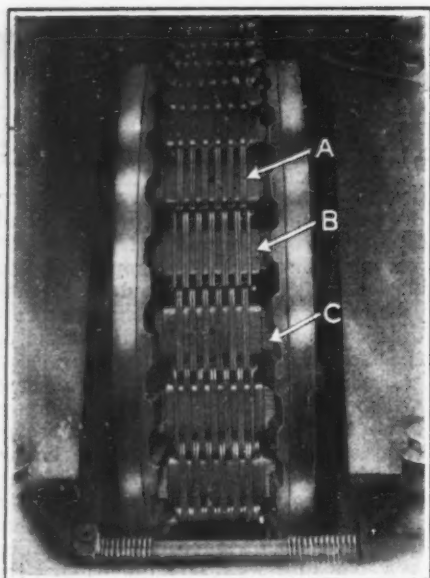


Fig. 1—This Drive Is Positive

Although the speed is variable between the driving and the driven units the action is positive, on account of the special construction of the chain.

hub, while also the two halves are staggered in the sense that a rib is always opposite a groove. The chain is engaged at the edges by these ribs, which act as teeth, so that the drive is positive.

The chain consists of composite links formed of plates A (Fig. 2) with a longitudinal slot containing a sleeve or casing B open at each side, inside of which is a pack of small thin steel plates or slats C, which are, however, loose in the sense that each can move in a direction at right angles to the travel of the chain. These slats project in turn from each side into the grooves between the ribs, and in running, as a link enters the V of the pulleys, the ribs or teeth of one side of the pulley push the requisite number of slats across into the space on the opposite pulley face. Also to insure continuous and easy running the driving edges of the wheel teeth are not at right angles to the wheel faces, but are inclined somewhat so that there is no possibility of half a slat being necessary to fill the space completely.

To alter the speed of the driven shaft, the halves of each of the split pulleys are made to slide along the

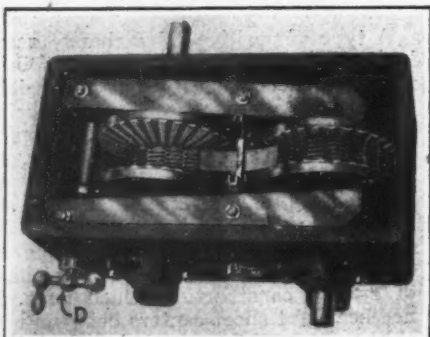


Fig. 2—Speed Changes Easily Made

When desired the speed of the driven unit is changed by turning handle D. The whole arrangement can be obtained in a closed box flooded with oil, or operated as an open drive at long centers.

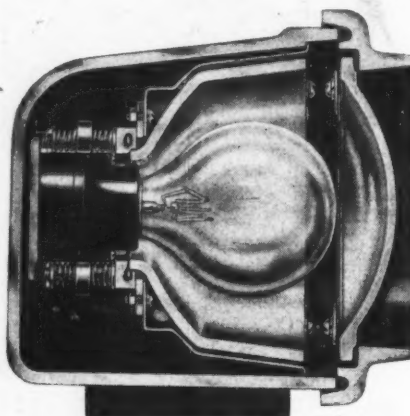
shaft by turning the handle D, Fig. 1. This operation brings the faces of one pulley closer together and at the same time pushes the faces of the other pulley farther apart, thus changing the relative speed of the two shafts.

The smallest standard gear is rated up to 5 hp. and has a speed ratio of 6 to 1, the whole being contained in a closed box 20½x13½x10 in. The next larger size is rated up to 15 hp. with the same ratio and an over-all size of 29x13½x14½ in.

New Headlight Using "Pyrex" Lens Decreases Breakage

In announcing its new Imperial type MB headlight, the Ohio Brass Co., Mansfield, Ohio, believes it has made a decided improvement in its product. This type incorporates features which the company states has made its other styles popular, besides being smaller, more compact and having greater strength.

Pyrex glass is used for the lens and is protected by a guard which makes the usual grids unnecessary. The reflector, though but 5½ in. in diameter



Lights the Way

Eight helical springs cushion the lamp protecting the filament from shocks. Casing and doors are made of steel casting with a minimum section of ½ in.

according to the manufacturer, gives ample light both at a distance and near the locomotive. The reflector is made of silvered Pyrex glass.

Industrial Notes

Effective Dec. 1, Paul Ackerman was appointed engineer, service department, of the Timken Roller Bearing Co. All service work of the automotive, industrial and steel mill divisions will be coordinated under his direction. Headquarters will be maintained at Canton, Ohio. J. H. Ridge has been appointed manager of the Pittsburgh branch of the Timken Roller Bearing Service & Sales Co. G. G. Weston has been appointed manager of the Omaha branch.

The Electric Controller & Mfg. Co., of Cleveland, Ohio, announces the appointment of Farr Electric Service, Inc., 228 W. South Temple St., Salt Lake City, Utah, as its district representatives.

Publications Received

The Pennsylvania Geological Survey, in co-operation with the U. S. Geological Survey, has published the following topographic and geologic atlases of Pennsylvania: No. 65, covering the Punxsutawney Quadrangle, with description of the geology and mineral resources by George H. Ashley; No. 37, covering the Greensburg Quadrangle, description of mineral resources by Meredith E. Johnson; No. 206, the Allentown Quadrangle, description by Benjamin Leroy Miller; No. 178, New Holland Quadrangle, description by Anna I. Jonas and George W. Stose.

An Investigation of the Mechanism of Explosive Reactions, by Crandall Z. Rosecrans. Engineering Experiment Station, University of Illinois, Urbana, Ill. Bulletin No. 157. Pp. 64; 6x9 in.; illustrated. Price 35c. Deals with a study of the explosion of mixtures of ethyl and air in a cylindrical bomb of constant volume. These experiments are a continuation of the general investigation of the explosion of gaseous and liquid fuels.

Recent Developments in Lamp Life-Testing Equipment and Methods, by J. F. Skogland and R. P. Teele, Jr. Technologic Papers of the Bureau of Standards, Washington, D. C. No. 325, (pp. 681 to 702 of Vol. 20). Illustrated. Price, 15c. Describes briefly the test methods and the construction and use of computing scales and other accessory equipment used in connection with bar and sphere photometers.

Fuel Economy in Heating the Home, by The Special Commission on the Necessaries of Life of the Commonwealth of Massachusetts. Pp. 12; 6x9 in.; illustrated. Briefly describes the care of heating apparatus, the principal kinds of fuels available and general rules to be observed in burning the different fuels.

The Pressure Wave Sent Out by an Explosive, Part II, by W. Payman and W. C. F. Shepherd. Safety in Mines Research Board. Paper No. 29. Price 1s. net. H. M. Stationery Office, Adastral House, Kingsway, W. C. 2, London, England. Pp. 28; 6x9 in.; illustrated. A detailed account of an apparatus designated "a wave-speed camera." Experiments are described illustrating the operation of the apparatus, using detonators as the explosive charge.

Detailed Report on Mercer, Monroe and Summers Counties, by David B. Reger. West Virginia Geological Survey, Morgantown, W. Va. Pp. 963, with 24 pp. of introductory matter, illustrated with 34 halftone plates and 30 zinc etchings and accompanied by a separate case of geologic and topographic maps of each county. Price, \$3.50.

Mundy's Earning Power of Railroads. Jas. J. Oliphant & Co., New York City. Pp. 535; 5x7 in. Covers stocks, funded debt, maintenance, dividends, investments, valuations, etc.

Sixth Annual Report of the Federal Power Commission, covering the fiscal year ended June 30, 1926. Pp. 273; 6x9 in.